PORTLANDMAINE

Peninsula Transit Committee

Portland Peninsula Transit Study

December 2008

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In Association with:
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February, 2009

To All Residents of the Portland Peninsula,

This document contains the final report of the Peninsula Transit Committee for the Portland Peninsula Transit Study. This study was conducted as a complement to the Portland Peninsula Traffic Study of 2004. Both studies provide Portland with the tools to chart a course for its transportation future.

The Peninsula Transit Committee is happy to have been an active part of this process, guiding the development of the Portland Peninsula Transit Study in close coordination with staff from the City of Portland, the Portland Area Comprehensive Transportation Study (PACTS), the local business community, and interested residents of the peninsula. While by no means a definitive solution for all of Portland's current and future transportation challenges, the Transit Study and input from the Traffic Study have provided clear guidance on how all concerned stakeholders might begin to tackle Portland's mobility challenges.

We hope you will find this report to be a valuable planning resource for years to come.

Sincerely,

The Portland Transit Committee:

Councilor Kevin Donoghue, Chair Portland City Council
Bill Hall, Peaks Island, Portland Planning Board
Christian McNeil, West End, Bicycle/Pedestrian Committee
Fred Dillon, Libbytown Neighborhood
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The Portland Peninsula Transit Study

December 2008

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On behalf of:

The City of Portland
The Portland Area Comprehensive Transportation Study
The Portland Peninsula Transit Committee
And the residents of Portland, Maine

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Foreword

Peninsula Traffic Plan Integration with the Peninsula Transit Study

Introduction

The Peninsula Transit Study resulted from a recommendation in the preceding Peninsula Traffic Study process which spanned a period from year 2000 to 2006. The Traffic Study generated significant concerns (mostly against large infrastructure proposals) and was ultimately tabled until the completion of the companion plan, the Peninsula Transit Study. The policies for traffic contained within the proposed Peninsula Traffic Plan, as distinct from the roadway projects of the Traffic Plan, provide a valuable basis for considering transportation on the Portland Peninsula. With the completion of the *Transit* Study, it is important to recognize the importance of the *Traffic* Study policies as an important part of the current process. Ultimately, the City needs to consider the integration of these traffic policies into a set of comprehensive multimodal transportation policies.

The Peninsula Traffic Study remains a valuable analysis. The resulting data provides the basis for understanding system-wide traffic impacts of future growth and development on the Portland peninsula. The process showed a glimpse of a future scenario in which growth in urban density was divorced from transportation planning for all modes of travel. The roadway and intersection images produced demonstrated the risks of current practice and showed a future Portland that is neither desirable nor sustainable.

Background

The Peninsula Traffic Study was initiated as a means to comprehensively evaluate the roadway impacts of traffic growth and development on the Portland Peninsula. During the years preceding 2000, a number of major initiatives were concurrently under way or under evaluation, including: drafting redevelopment plans for the Bayside neighborhood and the Eastern Waterfront districts; completion of a new connector roadway between West Commercial Street and the Congress Street exchange at Route I-295; planning for a northerly extension of Amtrak rail service through the Peninsula; and recommendations in the Deering Oak Master Plan for removal of thru-traffic (State Route 77) from the historic park. These projects were in various stages of contemplation or implementation and were *in addition* to significant development proposals peninsula-wide and a potential boom in residential construction.

With the level of activity anticipated, no single initiative could adequately analyze its potential traffic impacts and needs. The Deering Oaks proposal in particular remained at a standstill without an understanding of the systemic issues impacting the City's peninsula roadway network. The City came to understand that a lack of traffic data, and not having an overarching traffic plan, could stymie development and result in unintended consequences for City residents and the Downtown business community. Accordingly, the City, with the financial support of PACTS, initiated an ambitious planning process to evaluate and plan for the cumulative effects of anticipated traffic growth on the Portland Peninsula.

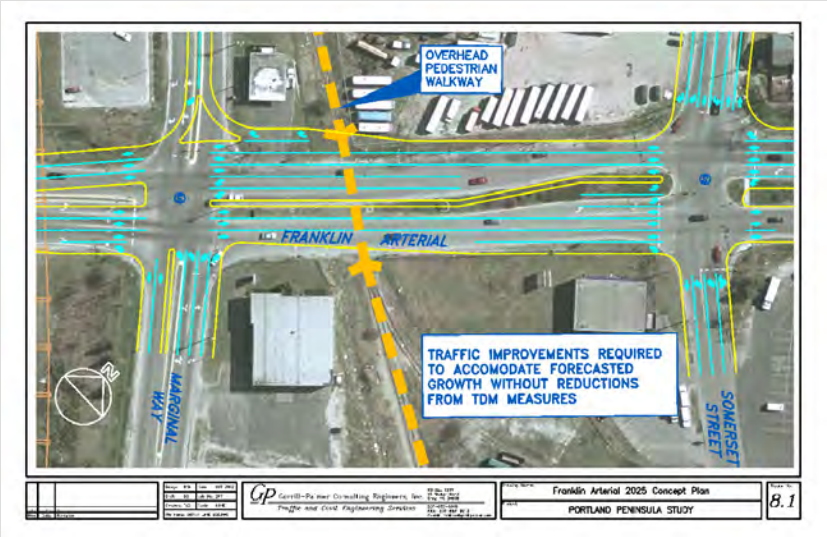
Traffic Study Methodology

The Peninsula Traffic Study made two important assumptions. Firstly, the Study was premised on the basis that travel patterns and modal split would continue according to recent past experience. The Study methodology combined an extensive "origin and destination" analysis of current traffic volumes and patterns with modeling that projected these findings with augmentations for planned development and historical background traffic growth. The Study made no attempt to push travelers out of single occupancy vehicles, nor did the study assume significant external forces that might achieve a greater percentage use of transit or other non-vehicular travel modes. As such, the Study presented a conservative, or "worst-case" scenario of traffic growth based on this set of assumptions.

Secondly, the Study assumed that commuter traffic should be routed to the extent possible along non-residential arterials as a means to dissuade residential cut-through on local streets and to curb traffic growth on arteries in residential neighborhoods. Additionally, where adequate right of way existed, the Study re-configured roadways and intersections to accommodate the projected traffic growth to result in "adequate" levels of service as established by recognized national standards. This second assumption had its greatest impact on Franklin Arterial, as noted below.

Study Results

The results of the Traffic Study were a set of roadway recommendations (reflecting the projected traffic growth directed onto principle arterial corridors) and a set of policies established by the Study oversight committee. While the proposed roadway improvements followed a traditional traffic engineering design process, the policies were forward thinking with consideration of land use issues, parking management, and transit promotion with a goal of avoiding lane expansions as much as possible. The infrastructure recommendations essentially became a cautionary tale reflecting what would result from continuing past transportation practice and, in particular, maintaining the current modal split for transportation.



Images such as the proposed 9-lane section of Franklin Arterial at Somerset Street caused the public and the City Council to reject the roadway project components of Peninsula Traffic Study results

The self-conflicted nature of the report became evident during its review with the public, the Planning Board, the Transportation Committee, and ultimately, the City Council. In 2006, six years after starting the Peninsula Traffic Study process, the City Council tabled adoption of the Peninsula Traffic Plan pending completion of the Peninsula Transit Study.

Peninsula Traffic Plan: Goals and Policies (Chapters 1-4)

After the failure of the plan's adoption, members of the Traffic Study oversight committee, peninsula neighborhood association representatives, and other interested parties took on the task of extracting and redrafting the policies from the Traffic Study report into a coherent body of work for consideration separate from the controversial roadway proposals.

This effort was consistent with the Planning Board's and Transportation Committee's reviews of the Traffic Study report over the course of 2006. After struggling with the document, both the Planning Board and the Transportation Committee ultimately voted to recommend the adoption of the *policies* of the report. The Planning Board went on to recommend retaining the balance of the document for use in future study and plan implementation. The Transportation Committee's recommendation was more detailed, with acceptance of certain infrastructure elements and rejection or modification of others.

The revised policies, *Peninsula Traffic Plan: Goals and Policies* (sometimes referred to as "Chapters 1-4") generally clarify and expand on the work of the Traffic Study, but were lost in the controversies over roadway changes. In November of 2007 a reconstituted Transportation Committee reviewed the revised *traffic* policies and voted to combine document with the findings of the *Transit* Study so as to achieve a holistic and functional *transportation* policy document.

Ultimately, the Traffic Study shows the importance of adopting policies that address vehicular traffic honestly, deliberately, and within the context of broader land use and transportation goals. Vehicular traffic remains the dominant mode of transportation serving the Portland Peninsula. Following the direction of the City's Transportation Committee, the *Peninsula Traffic Plan: Goals and Policies* are included in summary as a foreword to this report.

Peninsula Traffic Plan, Policy Summary, revised, November 2007

Traffic Goals

- Minimize impact of traffic on residential neighborhoods, both on- and off-peninsula
- Maintain efficient traffic flow, acceptable levels of service, and minimize air pollution
- Serve Downtown, Bayside, Amtrak train station, Ocean Gateway and other on-peninsula projects that are traffic generators and employment centers.
- Reduce traffic volumes and, thus, air pollution resulting from traffic volumes.
- Reduce the presence and impact of highway arterials on the peninsula.
- Strengthen and enhance connectivity between peninsula neighborhoods, open space integrity, and pedestrian access to open space.
- Facilitate access to designated destinations by appropriate signage.
- Address the I-295 corridor and interchanges, future volumes, and safety issues in a manner consistent with the New Vision for Bayside Plan.

Policy Recommendations:

Traffic Policy should no longer accommodate the car over all other considerations.

- Shift from an auto-oriented infrastructure to promotion of other modes.
- Shift investment strategy from support for new lanes of asphalt to transit.
- Roadways should be built to targeted speeds – reduce rather than promote speed.
- No longer base traffic planning on accommodating peak hour volumes.
- Traffic delays should be considered normal during "rush hour" in an urban environment.

Land Use Policy should encourage development of more housing to assure density in support of transit.

Transit Policy should encourage development of transit to reduce the growth of traffic to and within the peninsula.

- Provide convenient, frequent, attractive, reliable and safe transit options
- Invest in transit vs. new lanes of asphalt

Parking Policy should encourage new initiatives to decrease the growth of traffic volumes.

- Construct and promote remote parking, connected to downtown by frequent, reliable transit.
- Allow parking impact fees as an alternative to requiring parking for new development, use fees to support transit.
- The City should manage the parking supply rather than continue to expand it.
- Develop a rideshare program.
- Change the fee structure for on-street vs. garage parking.
- Plan for on-street parking where it does not currently exist.
- Use parking fees to create pedestrian amenities and/or subsidize those who do not bring cars to work.
- Develop shared parking.

Pedestrian and Bike Policy should be given full consideration in all infrastructure design

- Encourage walking and biking, along with transit – "share the street"
- Gaps in the pedestrian network must be improved.
- Existing barriers, such as one-way traffic, should be identified and mitigated.

Infrastructure

As exampled in the Franklin Arterial image above, the Peninsula Traffic Study addressed more than policies – infrastructure is at the core of the City's transportation future and the study took a straightforward approach to showing how the roadway system might respond to traffic growth. The value of the Traffic Study images is that they show the predictable results of traditional traffic engineering projected into the future - results that proved extremely unpopular.

The Traffic Study's results, and its failure to be adopted, beg the question of what to do as an alternative? Congestion will inconvenience both motorists and bus users. Safety conflicts will cause traffic mishaps along with bicycle and pedestrian accidents.

The public and City decision makers rejected the potential for 8 and 9 lane sections of roadways on the Portland Peninsula; but, the City still needs to confront the need for infrastructure planning that addresses both traffic growth and promotes alternative transportation.

In the short and long term, busses will play a dominant role in an alternative transportation future for Portland. Accordingly, roadway infrastructure will always be the heart of Portland's inter-modal network. Given the importance of the infrastructure, it continues to be critical to address the City's street system in the areas identified in the Peninsula Traffic Study – albeit with a different set of assumptions.

The Traffic Study identified corridors and areas where roadway enhancements would be needed to accommodate growth and/or achieve City goals for neighborhoods, districts and parks. These areas include Franklin Arterial and Forest Avenue connecting to Route I-295, the Bayside district (building on enhancements that started with the year 2004 Chestnut Street extension to Marginal Way), the Eastern Waterfront (further expanding the block and lot system serving Ocean Gateway and the Maine State Pier), and Deering Oaks (with further exploration of two-way traffic on State and High Streets.) While the specific roadway enhancements shown for these areas in the Traffic Plan were not adopted, the need for their evaluation has not abated.

The following project areas were identified in the Traffic Study report as needing infrastructure improvements. Some, but not all, of these project areas have continued according their own specific processes. All warrant notation and promotion in this report.

1. *Franklin Arterial*

As a counter point to the Peninsula Traffic Study recommendations, in May 2007 a group of citizen activists, the self-described "Franklin Reclamation Authority" conducted a well attended workshop dedicated to re-visioning the artery. The session (documented in a report found at

http://franklinstreet.us/community-workshop-report)

resulted in a problem statement for the roadway as well as a vision statement for its transformation. Working from the "Authority's" leadership, PACTS and the City issued a September 2008 RFP to engage in a Corridor Study to find a "context sensitive solution" for the roadway using the guidelines below:

- Further articulate the community vision for Franklin Street
- Assess opportunities and challenges along and across the corridor from a land-use and multi-modal transportation perspective
- Educate stakeholders, officials, and the public in flexible design models and benefits of Context Sensitive Solutions planning models
- Develop broad-based participation and engagement through consensus based decision making
- Identify conceptual alternatives to Franklin's current design and assess them in relation to evaluation criteria. These criteria may include: capacity, economic development opportunities such as housing and places of commerce and employment, safety, harmonious and respectful relationships to surrounding community and urban context, connectivity, environmental, engineering, right of way, and fiscal constraints and opportunities.
- Recommend overall design development alternatives while recognizing Franklin's role as a major traffic Gateway onto the peninsula.
- Assess development implications including connectivity, parcels, potential scale, and massing

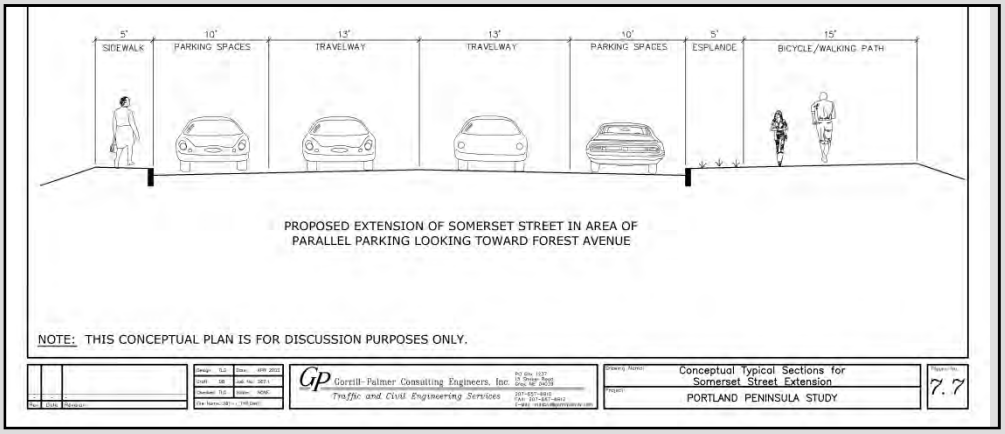
- Articulate tangible short-, medium- and long-term goals for improving the functioning of Franklin Arterial for all users

As of October 2008, the City is poised to engage in this study using the Franklin Reclamation Authority's report, the data from the Peninsula Traffic Study, and the findings of this report as foundational documents.

2. *Bayside*

Even as the development economy stalls nationally, the Bayside neighborhood continues to see sustained grow and development. Enhancing the infrastructure needed to serve this growth will be a continual challenge. Given that the arterial "improvements" shown in the Traffic Study report are not expected to be implemented, it is likely that Transportation Demand Management (TDM) will play a critical role in curbing development associated traffic growth. The City Council recognizes the value of TDM for Bayside, a district identified as a location for *transit orientated development,* and has recently established a site plan standard requiring TDM plans for major development. Likewise, non-automotive travel modes will be favored with the introduction of the planned Bayside Trail to be constructed on the former Union Branch rail line.

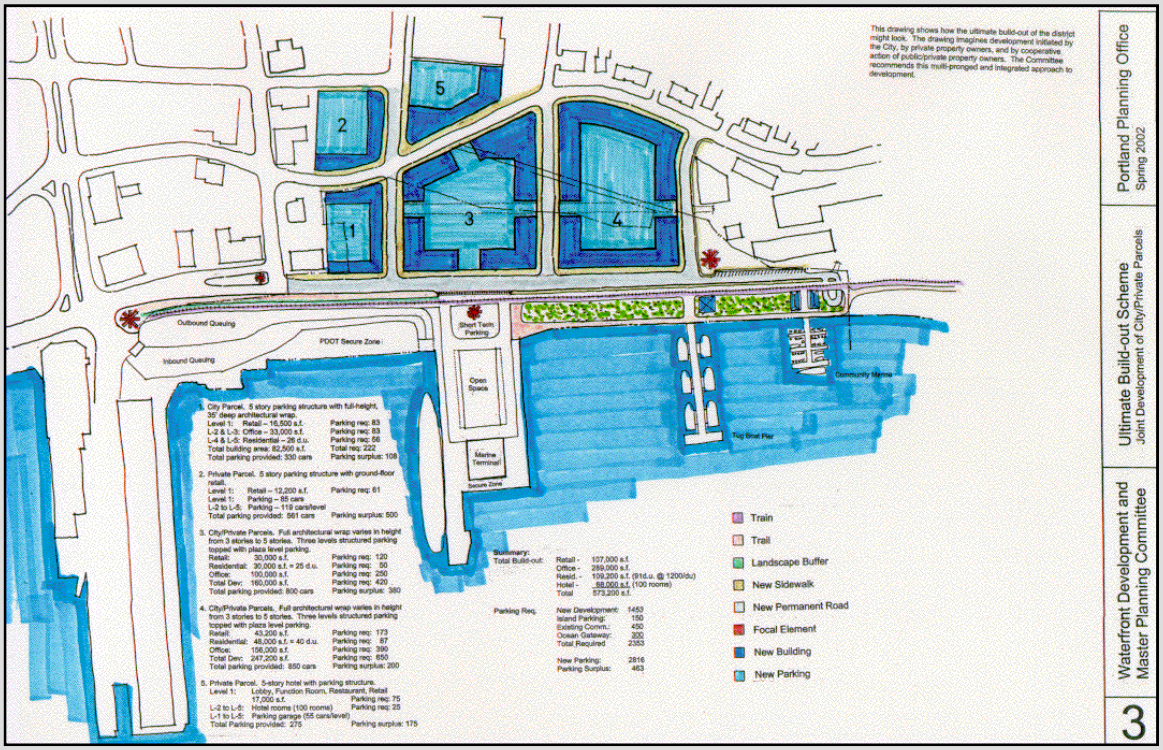
For the traffic growth that does occur, it is likely that continued street extensions that promote inter-block connectivity will also play a vital role in dispersing traffic and avoiding accumulated lanes on single corridors. This process began with the successful extension of Chestnut Street to Marginal Way in 2004 and could continue with extensions of Pearl Street and Somerset Street. The Somerset Street extension project will be closely associated with the Bayside Trail implementation. The nature of the Somerset Street extension and its potential connection as far as Forest Avenue remain unresolved issues. Should the corridor serve as a full service roadway with co-located trail, as suggested by the Peninsula Traffic Study? Alternatively, should the trail take precedence with potential for transit or future light rail co-locations? The extent, use, location, and design of the Somerset Street extension need to be confronted and established during trail design discussions in the very near term.



The Peninsula Traffic Study envisioned Somerset Street extension as a full service roadway, co-located with the Bayside Trail

3. Eastern Waterfront Street Extensions

The Eastern Waterfront Master Plan envisions an extension of the traditional block and lot system of roadways eastward from India Street with an eventual integration with the Portland Company complex at the base of Munjoy Hill. The recent construction of Thames Street (the Commercial Street extension) and Hancock Street (from Middle Street to Thames Street) has successfully implemented the first phases of planned street extensions. While the Peninsula Traffic Study incorporated these findings into the draft Peninsula Traffic Plan, the Traffic Plan's failure should not be interpreted as a rejection of Eastern Waterfront Master Plan findings. As development continues in the Eastern Waterfront, planned street extensions remain the city policy for infrastructure in the area between Fore Street and Thames Street.



Street extensions remain at the core of infrastructure policy for the Eastern Waterfront Master Plan

4. State and High Streets / Deering Oaks

The Peninsula Traffic Study was in large part prompted by the concept of reducing the impact of Route 77 traffic (State and High Streets) from Deering Oaks. The Deering Oaks Master Plan, 1999, recommended eliminating all through traffic from State Street. The Traffic Study consultants, City staff, and the oversight committee struggled with the issues: Was it possible? At what cost? Under what conditions?

Ultimately, the Traffic Study concluded that indeed the potential existed to relocate the through traffic away from State Street by returning State and High Streets to two-way traffic and relying more heavily on High Street to move the majority of commuter volume. Historic preservation issues remained to be resolved, and the concept met with considerable resistance from State transportation officials at MDOT. The concept also faced local resistance due to decreased level of service potential at

major intersections, loss of on-street parking, and street widening needed at Forest Avenue and High Street.

The Planning Board, the Friends of the Parks Commission, and the Historic Preservation Board recommended the change, while the Transportation Committee did not. With the tabling of the Peninsula Traffic Plan, the issue remains unresolved.

Regardless of the challenges, the benefits of creating a more pedestrian friendly park with more connected and usable space at the heart of the City remain compelling. There is irony in the fact that without asking the question of "Can we reduce traffic in Deering Oaks?" the City may never have attempted the Traffic Study. Without the Traffic Study, this Transit Study may also never have been initiated. The concept of decreasing through traffic within Deering Oaks is still worthy of consideration. Moreover, with the data and design work contemplated in the Traffic Study, there is the basis for a targeted community discussion over these ideas. The question remains to be answered.

Executive Summary

The Portland Peninsula contains the heart of Portland, one of the most livable small urban areas in the nation. It is also the center of the Southern Maine region that is growing and changing rapidly. As growth in the Portland Peninsula and in the rest of the region occurs, the region's communities are becoming more intertwined. This has led to increasing traffic on the Portland Peninsula, which has begun to diminish the peninsula's livability.

Recognizing the value of a less auto-oriented analysis, the City commissioned this transit study for the peninsula in the fall of 2007. The Portland Peninsula Transit Study is intended to develop effective alternative transportation solutions that will maintain and enhance the livability of the Portland Peninsula, including:

- Public transportation improvements
- Bicycle and pedestrian facilities improvements
- Transportation demand management strategies
- Transportation pricing strategies
- Changes to land use and development requirements

The Peninsula Transit Study was closely guided by staff at the City of Portland, the Portland Area Comprehensive Transportation Committee (PACTS), and a stakeholder committee comprised of the following organizations:

- Portland City Council
- Peaks Island Planning Board
- Portland Bicycle/Pedestrian Committee
- Greater Portland METRO
- Casco Bay Islands Terminal District
- City of South Portland
- University of Southern Maine
- Maine Medical Center
- Maine Narrow Gauge Railroad
- Portland Trails
- Portland's Downtown District
- Portland Housing Authority
- Representatives of the West End, Libbytown, Back Cove and North Deering neighborhoods

Goals Statement

The Committee has drawn upon several recent studies to develop the following goals for this effort, recognizing the valuable work that has gone forward to date:

- Maintain and enhance the livability of Portland's neighborhoods as the City grows and evolves through careful land use regulation, design and public participation that respects neighborhood integrity.
- Encourage sustainable development patterns and opportunities within the city by promoting efficient land use, conservation of natural resources, and easy access to public transportation, services, and public amenities.
- Improve the mobility, safety and accessibility of people throughout the region through a convenient, integrated, intermodal transportation system.

- Reflect a regional approach to transportation and land use planning and decision-making founded on effective communication and management of regional resources.
- Create a comprehensive transportation plan linked with land use planning policies in the City and region that guides decision-making for development and infrastructure investment.
- Strengthen the link between transportation investments and land use policies, and between decisions to preserve public investments and promote efficient land use patterns.
- Ensure that transportation planning fully respects and encourages pedestrian, bicycle, transit and other alternates to the single occupant vehicle.
- Establish sustainable land use patterns and a transportation system responsible to current and future generations in consumption of resources and protection of the environment.
- Enhance regional prosperity through support for the economic vitality of existing business and for economic development opportunities.
- Conserve and efficiently use non-renewable energy resources.

Needs Assessment

Two public forums were conducted as part of the Portland Peninsula Transit Study. The first forum, held on February 21st, 2008, at the Portland Ocean Gateway Terminal, was designed to capture public input about the needs and opportunities of each mode of transportation on the peninsula. Over 90 responses were provided for each of four surveys about driving, walking, biking and transit conditions. Specific geographic responses were recorded by participants at each of 10 large tabletop maps placed in the audience. These mapped details have been incorporated into an electronic database and GIS map by mode.

Walking Needs

A variety of pedestrian needs were identified across the Peninsula. Though the City is attending to the aesthetic and land use-related needs of walkers in its Pedestrian Activities District, many of the points brought up in the forum returned to more basic ideas of safety and directness of routes. In addition, although many of the needs expressed relate to downtown, many others apply to the arterial roads that divide neighborhoods. This highlights the fact that a notable 20% of the Peninsula's commuters walk to work, many on the busy auto-oriented streets between neighborhoods, and their needs have not been adequately addressed.

Figure ES-1 Summary of Walking Responses

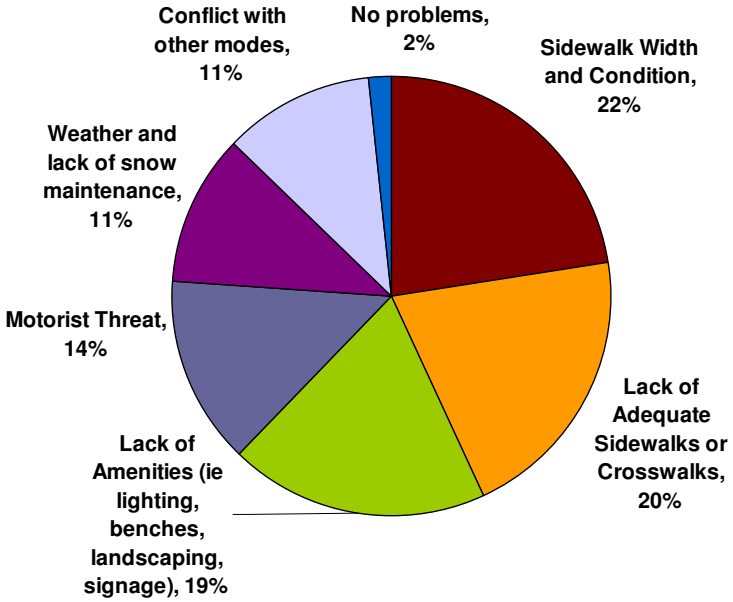


Figure ES-2 Walking Needs Identified at Public Forum

Biking Needs

Creating bicycle lanes and paths on the peninsula was by far the most often-cited bicycle-related need in the public workshops, signaling that the City should revisit the never-implemented 1982 PACTS Regional Bicycle Plan. However, it is imperative that a revised plan consider the peninsula's arterial roads as candidates for bike infrastructure. The majority of streets identified as needing lanes and paths are main roads, where cyclists are particularly vulnerable to high volumes of fast-moving traffic.

Figure ES-3 Summary of Bicycling Responses

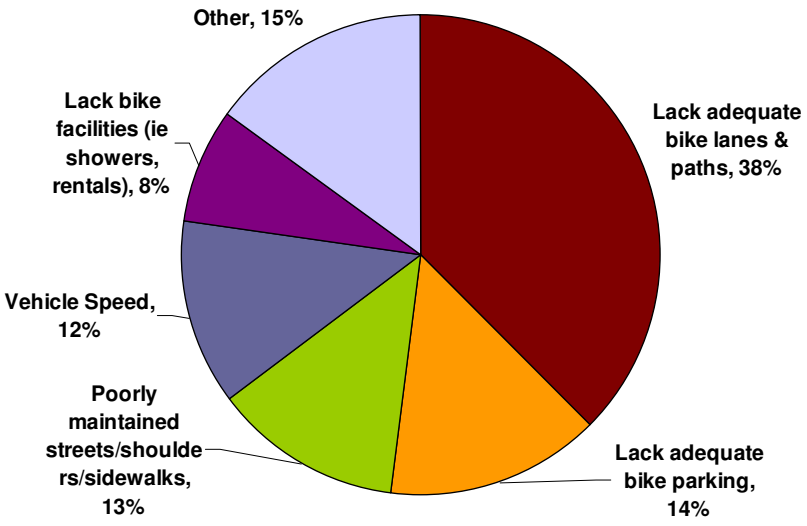


Figure ES-4 Bicycling Needs Identified at Public Forum

Transit Needs

In order for Portland residents to ride transit more regularly, participants stated that they must see improvements in the convenience and comfort of service. More frequent service is crucial to making transit a viable option. Additionally, participants felt transit should better serve major origins and destinations. Many felt that Portland's transit must also be made more user-friendly, with better maps and real-time information. The lack of bus shelters to shield passengers from the city's inclement weather is problematic. Furthermore, the METRO Pulse terminal was identified as a weak point in the transit system. According to participants, this downtown hub should be made more comfortable and accessible if the system is to attract new riders and meet the needs of existing ones.

Figure ES-5 Summary of Transit Responses

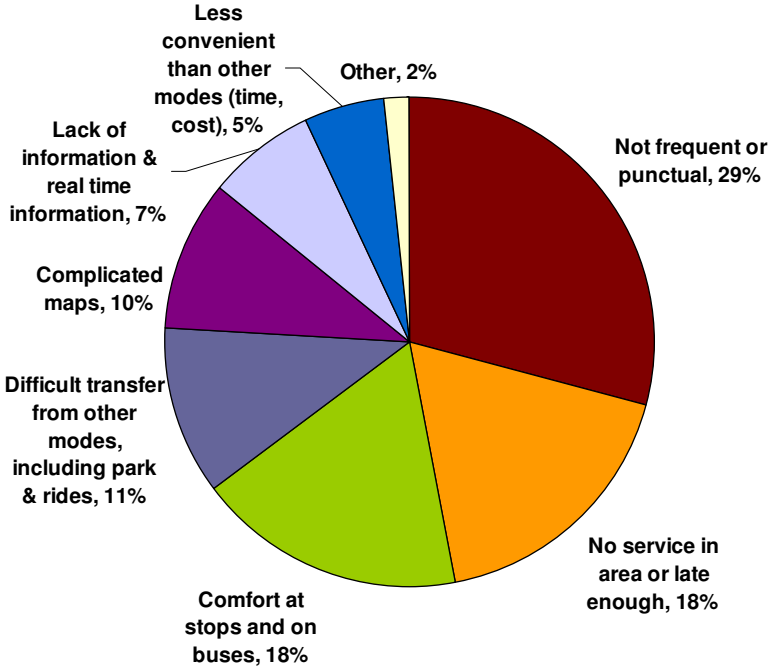
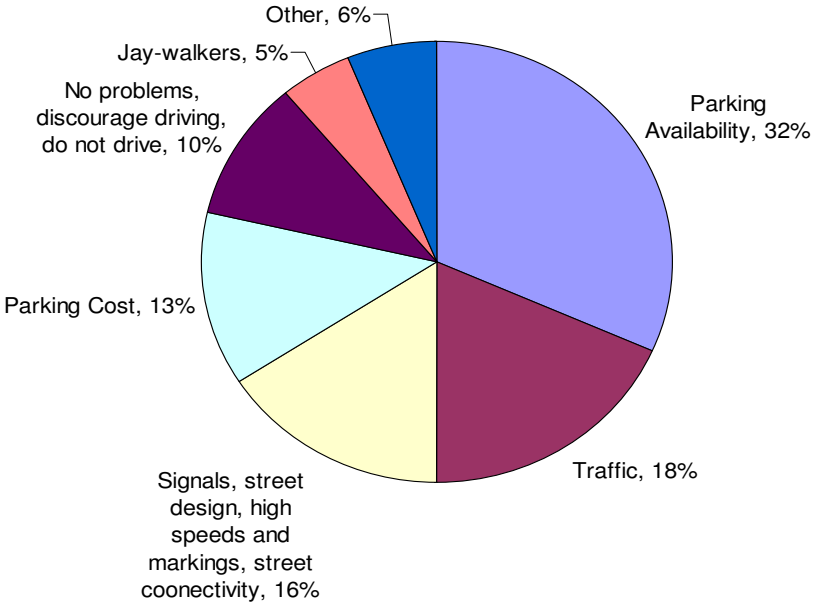


Figure ES-6 Transit Needs Identified

Driving Needs

Driving and parking concerns also were discussed at the first public forum. While traffic congestion and operations dominated about 40% of participants' comments, parking cost and availability accounted for a greater percentage (45%) of participants' concerns about driving.

Figure ES-7 Summary of Driving Responses



Walking and Biking Strategies

The Committee recommends that all of the walking and bicycling needs identified during the first public forum be addressed as soon as possible. Unfortunately, this represents a significant amount of infrastructure improvements with a cumulative expense of millions of dollars. Therefore, improvements must be prioritized, with more critical improvements occurring sooner. Determining which improvements are most important is subject to a wide variety of immediate needs represented by a wide variety of users. The Peninsula Transit Committee recognizes that all improvements are of critical importance to certain groups of users. Defining a comprehensive strategy that addresses as many needs as possible can be difficult.

In order to develop a strategy for addressing the identified walking and biking network needs, the Committee recommends a two-pronged approach that can cost-effectively develop short-term solutions while categorizing costly improvements according to the impact they may have. This approach involves broader peninsula-wide efforts that can occur in the immediate-term, as well as specific infrastructure improvements that can occur in the immediate, short and long terms. These are laid out in the Action Plan below.

Transit Strategies

In coordination with the Peninsula Transit Committee, Nelson\Nygaard helped develop a number of strategies for improving the attractiveness and utilization of transit in Portland. The methodology draws heavily upon what was heard at the first public forum. The goal was to develop a series of short, medium and long term strategies that can be implemented successfully given geographic, political and financial constraints.

The strategies developed by the Committee and the consulting team attempt to address several complementary as well as competing priorities revealed at the first public forum, including:

- Serving existing critical destinations with door to door service
- Serving existing neighborhoods with more frequent service, especially in response to increased interest in alternative modes
- Serving future development areas that do not currently have service in an attempt to establish transit ridership from the start
- Providing a higher-level of frequency and lower travel times to compete directly with drive-alone commuting
- Reducing the number of transfers that must be made with better through connections

All of these priorities cannot be fully achieved at the same time without significant investment in transit funding. Part of the Committee's goal has been to recognize the financial realities that transit providers and the City are facing, especially as budgets tighten in a flattening economy with spiking fuel prices. In the short-term, this means that Portland and its transit providers will have to make certain trade-offs to achieve all or part of these priorities. The recommended immediate and short-term transit strategies are included in the Action Plan below.

Parking and Transportation Demand Management Strategies

While improvements to Portland's walking, biking and transit networks will have a very positive impact and attract trips away from personal automobiles, significant shifts from driving will only be possible if the current subsidy for driving is reduced or eliminated. Without addressing the financial incentive given for driving, large reductions in traffic are not possible.

Many American cities have revealed this subsidy for driving with dramatic results. Placed in the control of business owners, they have realized it is far cheaper to subsidize transit, walking and biking than it is to continue to support the automobile. In the hands of government, communities have been willing to dramatically curtail the convenience of driving for the sake of other modes, resulting in significantly reduced pollution impacts, increased development, and reduced tax rates. In the hands of residents, homeowners have recognized the value of their garages or driveways and transformed their travel habits in return for greater housing affordability.

The Committee developed the suggestions in the Action Plan based on a review of best parking and transportation demand management practices conducted in communities throughout the United States, as applied to the Portland peninsula.

Action Plan for the Peninsula Transit Study

The Action Plan is intended to be a guide for implementing the recommended strategies of the Peninsula Transit Committee. Since actual implementation is in the hands of a variety of stakeholders on the peninsula, the Action Plan is intended to be a bridge relating future operational efforts to the planning efforts of the Transit Study. It is highly likely that specific actions will be modified to reflect changing conditions and new stakeholders. However, the Committee hopes that the basic elements of this plan can be retained as a guide for all future action.

The Action Plan includes a **phased implementation timeline** for all recommended peninsula transportation improvements, policies, and programs, including immediate-term actions (within 1 year), short-term actions (within the next 5 years), and long-term actions (within the next 10-20 years). This is followed by an **implementation schedule** summarizing all critical elements.

Immediate Term Actions (Within One-Year)

Parking and Transportation Demand Management

1) Institute a Trip Reduction Program [Recommendation 8.1]

The City of Portland should take a leadership role that reflects the principles of reducing vehicle trips on the peninsula. If staff cannot change their travel patterns to reflect the goals of the Committee, there should be no expectations on other stakeholders. Therefore, a new trip reduction program should be implemented that commits the City and all City staff to the principles of reducing vehicle trips on the peninsula by taking the lead on TDM programs and setting an example for peninsula businesses and residents.

2) Establish a Transportation Management Association [Recommendation 7.9]

In partnership with GO MAINE, GPCOG, PACTS, the Chamber of Commerce, METRO, South Portland Bus, CBITD, the Maine Medical Center, the University of Southern Maine and any interested employers or advocacy organizations, the City should advocate for the creation of an independent peninsula-wide TMA. The TMA would be the primary conduit for connecting employees and residents with Portland-area TDM programs.

3) Establish a "Sustainable Transportation Fund" [Recommendation 8.2]

The City should create a separate account for expenditures that support the recommendations of this study. It would be funded by surplus revenues from municipal parking fees, permits and impact fees, with payments dedicated to improvements near the source of collection.

4) Adopt a TDM Ordinance [Recommendation 7.15]

Require all new developments on the peninsula to become members of the peninsula TMA and require implementation of TDM programs. New development should be required to implement one or more TDM measures from a "toolbox" of options.

5) Establish a Transportation Resource Center [Recommendation 7.10]

Create a visible one-stop information kiosk or storefront to market Portland's sustainable transportation programs, disseminate multi-modal transportation information, and provide visitor assistance. It would feature information about the Portland TMA, Portland's trip reduction programs, the Sustainable Transportation Fund and its advisory committee, each transit provider's route and fare information, a consolidated transit system map, walking routes, bicycle parking locations and quantities, and current Portland transportation planning information. Ideally, the Center would be located on Monument Square near Congress Street.

6) Pursue a "Park Once" Strategy [Recommendation 7.1]

Through customer-friendly efforts to encourage availability, turn-over and convenient access, the City of Portland and private parking operators should begin managing the peninsula parking as a system that optimizes the efficient use of existing resources without needing to construct additional parking.

7) Create Commercial Parking Benefit Districts [Recommendation 7.2]

The City should implement coordinated parking management policies for its on- and off-street paid parking, using demand-responsive pricing to promote parking goals of 85% occupancy on

each block face and in each garage, matching demand with available supply, and promoting turnover of short-term spaces. All surplus revenues beyond operational expenses would be dedicated to the Sustainable Transportation Fund for walking, biking and transit improvements on the peninsula.

8) Offer a "Parking Impact Fee" Program [Recommendation 7.6]

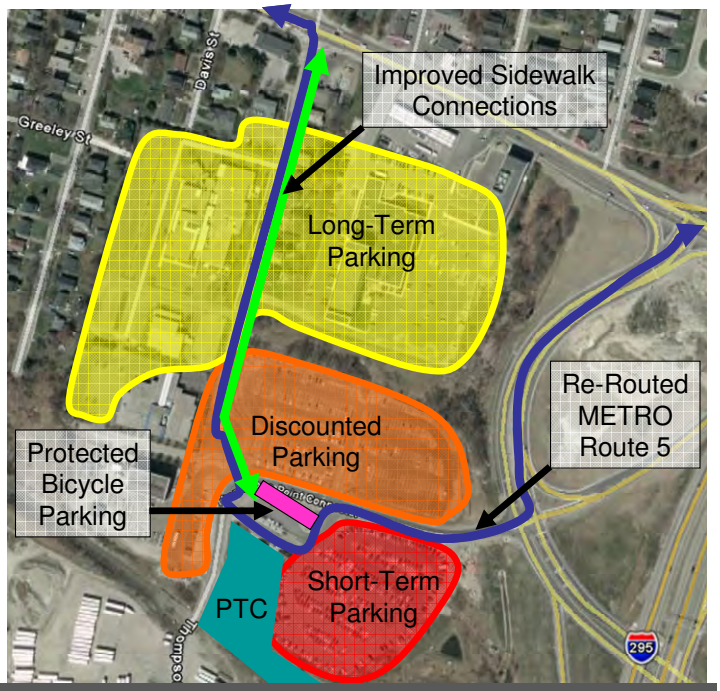
One of the most effective ways to create a financial incentive for new developments to participate directly in TDM and alternative transportation programs is to offer a fee in-lieu of building zoning-required parking. While it may be preferable to simply eliminate minimum parking requirements in the long-term, a "parking impact fee" can create a revenue stream to fund the Sustainable Transportation Fund.

9) Establish a Car-Sharing Program [Recommendation 7.7]

Car-sharing reduces both household vehicle ownership and the percentage of employees who drive alone because of the need to have a car for errands during the workday. It is an important tool for reducing parking demand, further enabling Portland to reduce future parking construction in return for in-fill development and alternative transportation infrastructure. While car-sharing programs are typically for-profit private businesses, their enormous public benefit warrants communities encouraging their development.

10) Implement a Peninsula Park & Ride Facility [Recommendation 8.3]

The success of the Portland Transportation Center (PTC) is clear, based on the heavy commuter parking demand present most week days. It is in the peninsula's best interest to expand parking capacity at and near the PTC to better serve commuters, local businesses, and Portland visitors destined for the peninsula. In coordination with surrounding parking facilities and on-street spaces, this location serves as a key peninsula gateway where vehicle trips may be intercepted.



11) Pursue Off-Peninsula Park & Ride Expansions [Recommendation 6.10]

Portland should build upon the proven success of commuter bus services, especially the ZOOM Turnpike Express. ZOOM removes several hundred cars from the peninsula's streets today, but its capacity is limited by its park & ride lots at Exits 32 and 36 of the Maine Turnpike, which are at capacity. The City should actively coordinate with the Turnpike and neighboring communities to expand existing and new park & ride locations so that ZOOM service may expand.

Transit System Improvements

12) Marketing (Recommendations 6.1-6.5; 8.4)

The City of Portland and its transit providers should begin marketing all transit resources in Portland as a single system to show the richness of the transit network in and through the region. As described in Chapter 6, a number of efforts should begin as soon as possible, including posting of transit information **[Recommendation 6.1]**, providing customized bus stop information **[Recommendation 6.2]**, creating a consolidated system map **[Recommendation 6.3]** and website **[Recommendation 6.4]**, and promoting the transit systems as a whole **[Recommendation 6.5]**.

To further support the image and visibility of Portland transit, a branding strategy should be developed that ideally serves all Portland transit providers **[Recommendation 8.4]**. A consistent logo, text and color scheme applied across the system will help identify services easily to new riders.

13) Improved Transit Amenities [Recommendation 6.6]

A basic transit stop improvement program can be undertaken by the City in coordination with METRO and South Portland Bus. As part of the City's normal pavement marking budget, key bus stops with higher boarding counts should be added to the regular pavement marking cycle to receive additional attention and improved markings, such as international standard crosswalks and bus box markings. The City also should ensure that new pedestrian wayfinding signs are installed close to bus stops, and on-going bike rack installations should also target bus stop locations.

14) Providing Community Transit Services [Recommendation 6.7]

The provision of transit service on the peninsula has evolved over the course of the past 30 years, resulting in an imbalance between fixed-route and paratransit service. The City should develop a preferred operating program for serving regular and mobility-impaired riders, then begin discussions with RTP and METRO to determine how to meet the needs of the city's key higher-density buildings and developments. Regardless of the outcome of RTP, METRO and City collaboration, the success of Route 8 as a "community bus service" is clear, and this model should be retained and improved. A formal change to a "deviated fixed-route" service is recommended to improve service quality and responsiveness while reducing operating costs.

15) METRO and South Portland Bus Route Changes [Recommendation 6.11]

METRO has already begun public hearings to revise Routes 1, 5 and 8. It is possible that South Portland Bus routes could be changed to overlap METRO service if service time on the peninsula is not lost. Therefore, it is recommended that the City continue to work with METRO and South Portland Bus to advance the planned immediate-term route changes, including: revising Route 8 to directly serve the Eastern Waterfront from Congress Street, continuing to Bayside and the PTC; adjusting all METRO route schedules to operate with consistent 15, 30 and 60-minute headways and departures from Monument Square stops on 5-minute clock increments; running Route 1 later in the evening; and adjusting the routing of South Portland Bus Routes 1 & 4 to overlap with METRO service.

16) Congress Street Bus Priority Corridor [Recommendation 6.12]

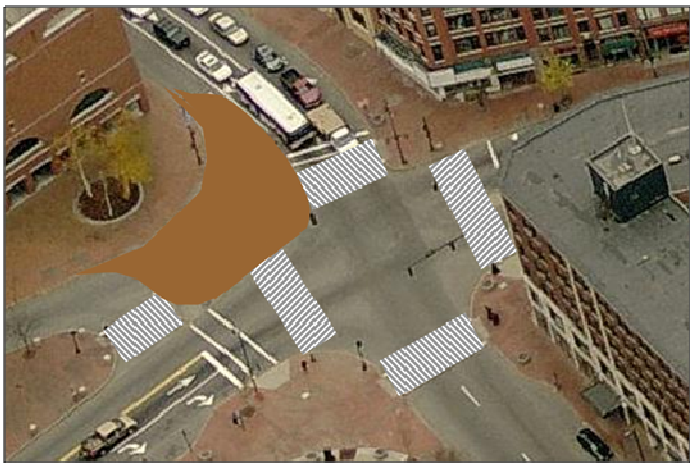
In order to help METRO and South Portland Bus improve operations on the majority of their peninsula services, the City of Portland should undertake efforts to implement a transit priority corridor on Congress Street. Congress Street serves the downtown portion of all METRO and South Portland Bus routes, however traffic operations on this congested commercial street often result in significant service delays and poor operating speeds. Implementing a transit priority corridor on Congress Street is relatively simple considering the possible transit service improvement.

Walking and Biking Strategies

17) New Pedestrian Programs (Recommendations 5.1-5.5; 8.6)

The City of Portland should establish a pedestrian prioritization program, including new "Feet First" development requirements **[Recommendation 5.1],** a pedestrian signalization program **[Recommendation 5.2],** a revised "No Turn on Red" policy **[Recommendation 5.3],** the pedestrian wayfinding system **[Recommendation 5.4],** and new international standard crosswalk markings **[Recommendation 5.5].** The City should also begin a targeting snow clearance effort **[Recommendation 8.6]** during winter months for pedestrian walkways, bus stops and especially curb ramps that get blocked by snow from plows.

18) Congress & High Improvements [Recommendation 5.6]



The simplification of the Congress Square intersection can greatly improve pedestrian safety at a critical connection between Congress Street shopping districts, reducing the perceived barrier of High Street. The suggested design will need to be developed in greater engineered detail. However, the resulting design should have a goal of simplifying intersection operations for all modes.

19) Forest & I-295 Evaluation [Recommendation 5.7]

The City of Portland should take an active position on a preferred approach to Maine DOT's evaluation of the Forest & I-295 interchange. The City's priority for all modes of transportation

should be simplifying intersection operations to increase pedestrian safety, encourage other modes of transportation, and reduce vehicle demand at this location.

20) Pedestrian Crossing Improvements (Recommendations 5.8-5.9)

In conjunction with new pedestrian programs, the City of Portland should prioritize the installation of improved crosswalks on larger roads **[Recommendation 5.8]** and key pedestrian signal improvements as identified in Chapter 5 **[Recommendation 5.9].**

21) Bike Rack Design Guidelines [Recommendation 5.14]

The City of Portland should adopt a clear set of bicycle parking guidelines and include referring language in Portland's zoning and development regulations. Bicycle parking should receive no less attention than regular vehicle parking

22) Priority Biking Improvements (Recommendations 5.15-5.16)

The planned Deering Avenue bicycle lanes should be extended along Park and Cumberland Avenues, and other facilities should be considered **[Recommendation 5.15]**. Bicycle boulevards should be installed on the streets recommended in Chapter 5 **[Recommendation 5.16]**.

Short Term Actions (within 5 years)

Parking and Transportation Demand Management

23) Expand Park & Ride at the PTC [Recommendation 8.5]

Given immediate-term changes in parking operations at – and in the immediate vicinity of – the PTC, this location becomes an increasingly valuable remote parking location for peninsula employers, such as the MMC. If parking utilization remains high at the PTC and parking revenues cover all parking operating costs, the City may seek to expand the facility by building a parking structure. With dedicated METRO service to the peninsula, the PTC can expand its market as a vehicle trip interceptor. However, even with the most inexpensive parking deck construction, a careful cost-benefit analysis should be conducted before proceeding with this recommendation.

Transit Strategies

24) METRO Route Changes [Recommendation 6.11]

METRO should advance additional route and schedule changes, including: provide consistent 15-minute or less frequencies on key peninsula route segments by overlapping routes and staggering departures; adjust off-peninsula ends of existing routes to be able to extend service on the peninsula; and maintain Route 1 service and stagger with other services on Congress Street or interline with Route 5.

25) Cross-Peninsula Transit Priority Corridor [Recommendation 6.12]

Establishing a cross-peninsula transit priority corridor is an essential part of providing quality transit service to new development in Bayside and along the Eastern Waterfront. It also serves to provide peninsula residents with access to Hannaford's, while giving off-peninsula residents a strong incentive to use transit as opposed to traveling the congested Forest Avenue corridor by car. Running east-west, this corridor breaks through the barrier of transfers at the Elm Street Hub for a large number of riders. It also brings a clear new service to existing Casco Bay residents.

26) Real-Time Arrival Information [Recommendation 6-13]

In coordination with the City, METRO should seek to provide real-time bus arrival information. While predictive information that is available on call-in systems or on variable message signs at bus stops is expensive to implement, initial planning for these systems should begin. In the meantime, real-time locational services, such as TransLoc, should be introduced.

27) Expand Universal Transit Pass Offerings [Recommendation 7.3]

Portland's transit providers should work to develop a bulk payment plan for institutions, employers and large residential developments to purchase an unlimited transit pass for the METRO, South Portland, ShuttleBus/ZOOM and Casco Bay systems. This will put transit at the fingertips of peninsula commuters, greatly increasing transit's attractiveness.

Walking and Biking Strategies

28) Safety and Access Improvements (Recommendations 5.10-5.11)

Several safety improvements **[Recommendation 5.10]** and access improvements **[Recommendation 5.11]** identified in Chapter 5 should be given priority for future infrastructure repairs in Portland. The majority of the recommended locations require sidewalk and wheelchair ramp work plus the

installation of new curb extensions or crossing islands. The public forum has given the City a convenient tool to select future project work, and every effort should be made to address the entire list of recommendations.

29) Bicycle Rack Program [Recommendation 8.5]

A very successful method of expanding bicycle parking locations is for communities to offer an amenity program where businesses can purchase a post & ring short-term bicycle rack at the bulk rate a municipality would pay, and the community installs the rack for no charge. This program gives businesses a sense of ownership of public infrastructure while removing the complexity and hurdle of identifying an equipment provider, installer and necessary construction permits.

30) Bike Stations [Recommendation 5.19]

Bike stations greatly increase the accessibility of biking to non-bikers. By providing dedicated conveniences, easy storage, education, easy repair services and/or bike rentals, bike stations or similar amenities have been demonstrated to greatly increase bicycle mode shares by eliminating some of the more complex issues that discourage many from biking. Bike stations also can form the basis for a shared bicycle system in the future.

Additional Actions

There are a number of other possible measures the City should start considering soon. However, these measures are more dramatic and may warrant implementation in the long-term. These include the following:

Parking and Transportation Demand Management

- Implement a “traffic congestion impact fee” for all new development
- Require employers to provide Universal Transit Passes to all downtown employees
- Require provision of Universal Transit Passes to all residents
- Build new public shared parking only as needed

Transit System

- Consider signal priority and other operational enhancements on all transit streets
- Incorporate real-time information in all higher boarding bus shelters
- Change the vehicle used by all transit providers to a hybrid bus or other unique vehicle.
- Increase METRO and South Portland Bus frequency to at least every 10 minutes.
- Install electronic fare collection equipment on all transit vehicles.
- Begin a harbor water shuttle to South Portland from CBIT.
- Create BRT service along Forest Avenue Corridor.
- Create BRT service along Route 6 & 7 corridor to the northwest.
- Initiate fixed-guideway trolley service along Commercial Street waterfront.
- Initiate fixed-guideway light-rail service from points north to the Eastern Waterfront, continuing across the peninsula through Bayside to the PTC and on to points west and south.

Walking and Biking Networks

- Continue the promenade multi-use path around to Bayside
- Traffic calm Park Avenue
- Explore conversion of State and High to two-way streets
- Reconfigure Franklin Arterial as a multi-way boulevard with a median preserved for a future light-rail alignment
- Add multi-use connections across I-295

Next Steps

While this final report includes many infrastructure, operations and management strategies that are new to Southern Maine, all of the strategies described below have been embraced by a portion if not all of the Committee members. All strategies have been demonstrated to work successfully in Portland or other cities of similar size and density throughout North America, as documented in the report. It is important to note that the majority of recommendations derive directly from the input of the public and members of the Committee.

Portland is at a unique point in its history. With the impact of regional growth requiring a serious evaluation of the peninsula's carrying capacity for transportation and land development, the city had already begun to embrace a multi-modal demand-side approach to rising congestion before this study was initiated. Through the efforts of numerous individuals, organizations and agencies, planning for new development in Bayside and the Eastern Waterfront Redevelopment has already begun to employ the best of pedestrian-oriented design, multi-use path integration, dense mixed-use and live/work development, and shared parking strategies. It is noteworthy that nearly all of the goals and objectives for this study came directly from the efforts that preceded it.

By implementing the recommended or similar strategies, Portland will be working to meet the goals and objectives of its policy-makers, residents and business community. These reflect a vision for a healthy and sustainable city that can continue to serve as the center of the Southern Maine region while preserving the livable character of the peninsula that has attracted so many to Portland.

Chapter 1. Introduction

Why This Effort?

The Portland Peninsula contains the heart of Portland, one of the most livable small urban areas in the nation. It is also the center of the Southern Maine region that is growing and changing rapidly. As growth in the Portland Peninsula and in the rest of the region occurs, the region's communities are becoming more intertwined. This has led to increasing traffic on the Portland Peninsula, which has begun to diminish the peninsula's livability.

In response to increasing traffic levels, the City of Portland commissioned the "Peninsula Traffic Study" in 2000 to examine existing and proposed roadway infrastructure in light of current and projected employment and population growth. However, during the course of this study, it became clear that the city could not effectively address its transportation needs by focusing primarily on traffic-oriented solutions. Without support for alternatives to the single-occupant vehicle (SOV), the study documented that significant roadway improvements would be necessary, including expansions of many intersections along Franklin Arterial, the possible grade-separation of Franklin Arterial at Congress, reconfigurations of the State and High intersections with Park and Forest, possible widening of High Street, and various intersection capacity improvements on Washington and Commercial. The study strongly and repeatedly encouraged an evaluation of efforts to reduce the demand for SOV travel in order to eliminate the need to increase roadway capacity.

To this end, the Traffic Study made several key recommendations to begin steering the City towards a more multi-modal solution to its future. These included:

- Revising the City's standard of maintaining a vehicle level-of-service (LOS) standard of "D" for new development within the Site Plan Ordinance to allow greater flexibility and acknowledge that congestion is a common urban condition.
- Conducting a land use study to plan for additional residential units on the peninsula as part of encouraging a more walkable, bikeable and transit-friendly transportation system.
- Implementing a parking impact fee.
- Developing remote park and ride facilities, shared parking programs, and ridesharing programs.
- Conduct a transit study for the peninsula.

Recognizing the value of a less auto-oriented analysis, the City responded to these recommendations by commissioning a transit study for the peninsula. In the fall of 2007, the City hired Nelson\Nygaard Consulting Associates to conduct the Portland Peninsula Transit Study. The City recognized that while the effort was titled as a "transit" study, it was really intended to address a full range of alternative transportation solutions that could be implemented as a complement to or in lieu of roadway projects. This Final Report is intended to develop effective alternative transportation solutions that will maintain and enhance the livability of the Portland Peninsula, including:

- Public transportation improvements
- Bicycle and pedestrian facilities improvements

- Transportation demand management strategies
- Transportation pricing strategies
- Changes to land use and development requirements

Approach and Methodology

Nelson\Nygaard's approach for completing the Peninsula Transit Study was closely guided by staff at the City of Portland, the Portland Area Comprehensive Transportation Committee (PACTS), and a stakeholder committee comprised of the following organizations:

- Portland City Council
- Peaks Island Planning Board
- Portland Bicycle/Pedestrian Committee
- Greater Portland METRO
- Casco Bay Islands Terminal District
- City of South Portland
- University of Southern Maine
- Maine Medical Center
- Maine Narrow Gauge Railroad
- Portland Trails
- Portland's Downtown District
- Portland Housing Authority
- Representatives the West End, Libbytown, Back Cove and North Deering neighborhoods

This committee, the Peninsula Transit Committee (or the Committee), has guided this study throughout the course of a nine-month effort. The scope of services included the following elements:

- **A Review of Existing Conditions**, including a review of all previous transportation studies conducted for the peninsula since 1993 and a set of existing conditions maps to understand roadway, sidewalk and bicycle facilities.
- **A Transportation Needs Assessment,** including a review of critical infrastructure needs, transit operations, and transportation policies and regulations related to the peninsula. A major part of this task was the First Public Forum, where the public was invited to document needs and issues in writing on large tabletop maps as well as through written comments.
- **The Development of Alternative Transportation Strategies,** including a transit strategy, a Transportation Demand Management strategy, and bicycle and pedestrian strategies
- **An Evaluation of the Optimal Mix of Alternative Transportation Strategies,** including transit service descriptions and operating costs, a parking and TDM program of regulatory reforms and operational strategies, and a bicycle and pedestrian mobility program of infrastructure improvements, ordinances and design criteria.

- **The Preparation of an Alternative Transportation Action Plan**, including immediate, short-term and additional action steps with estimated costs and funding strategies.

This document is the final report of the Peninsula Transit Study. It documents the results of the existing conditions review in Chapter 2. A set of goal statements and policy objectives were developed and documented in Chapter 3 to guide strategy development. Chapter 4 contains the needs assessment analyses, and Chapters 5 through 7 discuss the development of the recommended set of strategies. The final set of strategies are repeated with implementation recommendations in the Action Plan of Chapter 8.

Going Forward

While this final report includes many infrastructure, operations and management strategies that are new to Southern Maine, all of the strategies described below have been embraced by a portion if not all of the Committee members. All strategies have been demonstrated to work successfully in Portland or other cities of similar size and density throughout North America, as documented in the report. It is important to note that the majority of recommendations derive directly from the input of the public and members of the Committee.

Portland is at a unique point in its history. With the impact of regional growth requiring a serious evaluation of the peninsula's carrying capacity for transportation and land development, the city had already begun to embrace a multi-modal demand-side approach to rising congestion before this study was initiated. Through the efforts of numerous individuals, organizations and agencies, planning for new development in Bayside and the Eastern Waterfront Redevelopment has already begun to employ the best of pedestrian-oriented design, multi-use path integration, dense mixed-use and live/work development, and shared parking strategies. It is noteworthy that nearly all of the goals and objectives for this study came directly from the efforts that preceded it.

By implementing the recommended or similar strategies below, Portland will be working to meet the goals and objectives of its policy-makers, residents and business community. These reflect a vision for a healthy and sustainable city that can continue to serve as the center of the Southern Maine region while preserving the livable character of the peninsula that has attracted so many to Portland.

Chapter 2. Existing Conditions

Introduction

Numerous studies have recognized the Portland peninsula's potential for growth as an urban, walkable, mixed-use community with superior walking, biking and transit assets that avoid the need to construct extensive roadway and parking networks. As part of the research into existing conditions, many important transportation documents were reviewed. Each recognized this potential and clearly stated the adverse effects of previous planning efforts that were largely oriented towards improving conditions for the automobile only.

Unfortunately, little change has occurred in the orientation of infrastructure projects and operational policies over the years. While planning efforts have made it very clear that change is necessary to support a thriving community, no effective implementation efforts have taken place. The Portland Peninsula Transit Study Committee has taken this lesson to heart when developing recommendations for the Portland peninsula. As the following review of background documents and existing conditions demonstrates, there are numerous reasons to begin implementing new policies, programs and infrastructure improvements as soon as possible.

Background

Overview of Previous Studies

Existing planning documents for the Portland peninsula reflect the long-standing consensus that multi-modal transportation is increasingly important for maintaining downtown Portland's livability. Since 1993, several studies have been conducted that emphasize the need for enhanced public transit, improved bicycle and pedestrian facilities, transportation demand management strategies and changes to land use and development patterns. The most significant efforts are listed in Figure 2-1, with a timeline of each report's initiation and completion. In addition, the "primary documents" have been reviewed in depth in Appendix A.

Figure 2-1 Timeline of Transportation Studies Related to the Portland Peninsula

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Document Title																
PRIMARY DOCUMENTS																
Time of Change: Portland Transportation Plan	■															
Bayside Redevelopment Master Plan							■	■	■	■						
Eastern Waterfront Redevelopment Master Plan							■	■	■	■						
Portland Peninsula Traffic Study								■	■	■	■	■				
Destination Tomorrow, PACTS Regional Transportation Plan											■			■		
PACTS Regional Transit Coordination Study													■	■	■	
SECONDARY DOCUMENTS																
Greater Portland Travel Demand Management Study			■													
Portland Housing Plan										■						
Eastern Promenade Master Plan											■	■				
PACTS Portland Bike Plan																
PACTS Regional Bike Plan																
Maine Turnpike Park-and-Ride Lot Surveys															■	
METRO Transfer Study results																
The ZOOM Commute (passenger survey report)																
Portland North Rail Study																■

Key Findings

The primary planning documents for Portland's peninsula emphasize the need to concentrate on transit, bicycling, and walking, as opposed to auto-oriented transportation. Common themes include the integration of diverse modes, the need for expanded transit, the connection between land use and transportation, the necessity for regional planning, and economic development.

These themes are drawn from the growing consensus that Portland's livability will be diminished by increasing traffic congestion unless a shift in priorities takes place. The city's transportation infrastructure is facing mounting pressure due to the many demands placed upon it. As the largest city north of Boston along the Interstate 95 corridor, Portland is a significant financial, technical, and cultural center for Maine and northern New England. The Port of Portland serves many needs, including fishing and related industries, oil, standard freight, and the cruise ship industry. Portland is also an important tourist destination. Looking to the future, several planning initiatives are on the horizon that may further affect the downtown peninsula, including the redevelopment of Bayside, the Eastern Waterfront, and a number of other potential developments. Compounding these potential effects are the decentralizing population and the increasingly dispersed land use patterns of the region, which encourage auto use. As a result of these conditions and trends, vehicle miles traveled and vehicle hours traveled in the region are forecast to increase 25% and 33% respectively in the next 25 years.[1]

The studies reviewed are just as clear about the auto-centric nature of past planning efforts. As a consequence, Portland's streets and its land use layout currently cater to the automobile and do not always meet the needs of the pedestrian, the cyclist or the transit user. Arterials like State and High Streets are seen to divide neighborhoods, compromising access for those on foot or bicycle.

[1] Source: Destination Tomorrow

The Peninsula's traditional street grid has been interrupted at various points, making walk and cycle trips longer and less convenient. Furthermore, many neighborhoods lack the nearby mix of land uses needed to make walking or bicycling a viable transportation option for many trips.

The challenges facing transit users were also described by multiple studies. Common issues identified were the lack of intermodal connections at and between transportation hubs, disjointed traveler information and poorly coordinated transit schedules, which lead to difficult transfers between, and even within, services. Though the region's three principal fixed-route bus programs accept free transfers from connecting transit agencies, travelers often face significant scheduling barriers when attempting to plan trips that involve more than one transit provider. Many transfers require passengers to walk between bus stops, whose locations are not always obvious to inexperienced riders. Schedules and transfer connection times are complex and confusing. This is true for internal connections in the METRO and South Portland systems, as well as for transfers between systems. The problem is further compounded by limited traveler information. Typically, maps, timetables and internet trip planning tools are presented separately for individual systems, with no explanation of how to plan trips that involve more than one transit agency.

Finally, all studies pointed to a clear need for a transit study of the downtown peninsula. The Regional Transit Coordination Study called for an assessment of the gaps and needs in the current transit network and an analysis of where new transit investments should be strategically placed. Moreover, no comprehensive system-wide assessment of needed pedestrian and bicycle improvements has been conducted.

Relevant Goals and Objectives

As far back as 1993, Portland envisioned a more balanced transportation system. The overall goal of the *Time of Change, Portland Transportation Plan* was to reduce the share of work trips by City residents in single-occupant autos while increasing the share of trips by other modes. Supporting goals prioritized the integration of modes, with improved physical and operational connections. Additionally, the plan stressed the land use-transportation link, recognizing that compact development makes public transit a viable option. The plan clearly stated that future growth should not foster auto dependence.

The *Portland Peninsula Traffic Study*, completed approximately ten years later, reiterated this multi-modal focus. The plan's guiding principles mandate that equal attention be given to pedestrian infrastructure when roadway changes are made and that traffic planning should promote pedestrian, bicycle, transit and other modes. It also emphasized the management of traffic in order to avoid congestion and minimize impacts on neighborhoods and open spaces. Like Time of Change, it was stressed that the City should adopt land use and housing policies that support transit use. The development of additional residential units within the Peninsula was an objective that would help achieve this goal. The Peninsula Traffic Study also introduced the idea of a parking policy that would promote travel modes other than the automobile. Parking objectives included fee structure changes to favor short-term parking, a parking impact fee for new development and shared parking.

Similarly, *Destination Tomorrow*, the long-range transportation plan for the greater Portland Metropolitan Area written in 2006, lays out an overarching vision of a regional multi-modal transportation system that promotes economic development, mobility, energy conservation and environmental quality. The plan steers the city away from roadway capacity expansions, instead highlighting the need to enhance, maintain and in some cases expand passenger transportation

services to increase their use. Additionally, like the preceding plans, it aims to strengthen the link between transportation investments and land use policies.

The Peninsula's neighborhood redevelopment plans echo this focus on multi-modal transportation and the crucial transportation-land use connection. *A New Vision for Bayside* underscores the need for mixed-use transit-oriented development that supports a balanced transportation network for pedestrians, bus riders and auto drivers. The plan also calls for strategically located parking structures that will serve multiple functions, connect with transit, facilitate traffic flow with minimal impact on neighborhood residents, and avoid extensive land consumption by surface parking lots. Likewise, transportation and parking improvements are cited as key to redevelopment in the *Eastern Waterfront Master Plan*. The plan recommends shared parking, new streets that provide connections to the waterfront, and improvements to arterials to keep cruise terminal-generated traffic out of residential areas.

The goals and objectives of each plan are outlined more fully in Appendix A. Key goals and objectives have contributed directly to the goals and objective for this analysis. These are summarized in Chapter 2.

Portland Demographics

Residential Characteristics

The Peninsula is the heart of Portland, regarded as one of the most livable small urban areas in the nation and the center of the rapidly growing Southern Maine region. Though the city's population has decentralized over the past decades, the peninsula still holds about half the total population, or 23,000 people.[2] Average population density on the peninsula is 9,252 people per square mile, with the densest populations concentrated in the northern part of the peninsula in the East End and Bayside and in the southern section in the West End and Parkside (see Figure 2-2).

Inhabitants of the peninsula are more likely to be young or minorities, have lower median household incomes, and live below the poverty line than those of the Metropolitan Statistical Area (MSA) as a whole. On the peninsula, 25% of residents are between the ages of 25 and 34, 16% are 18 to 24, and 16% are 35 to 44. In contrast, only 22% of MSA residents are under 34. Though the downtown's minority populations are not large (3% of residents are Asian, 3% are Hispanic and 4% are non-Hispanic black), they exceed those of the MSA, where 1% of the population is Asian and less than 1% is non-Hispanic black or Hispanic. Economic characteristics show the greatest difference. Median household income on the Peninsula is $27,502, as opposed to $44,707 in the MSA. Twenty-four percent of the downtown population lives below the poverty line, while that statistic is only 8% in the MSA.[3]

Employment Characteristics

The heart of Maine's leading economic region, the Peninsula hosts 36,000 employees.[4] The highest concentration of jobs lies in Downtown and West Bayside, as illustrated in Figure 2-3.

[2] Source: U.S. Census 2000
[3] Source: U.S. Census 2000
[4] Source: Census Transportation Planning Package 2000

Figure 2-2 Portland Residential Density Map

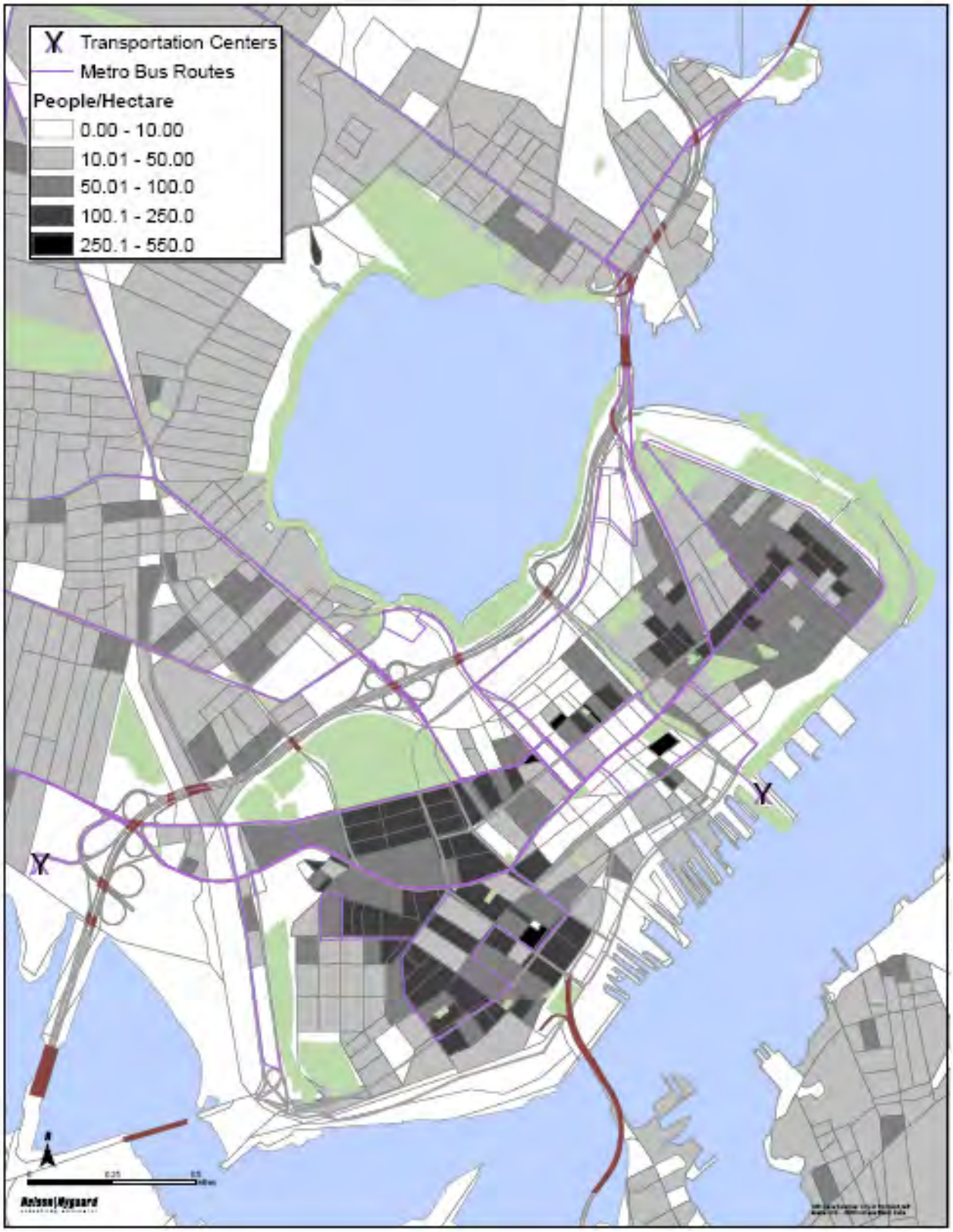
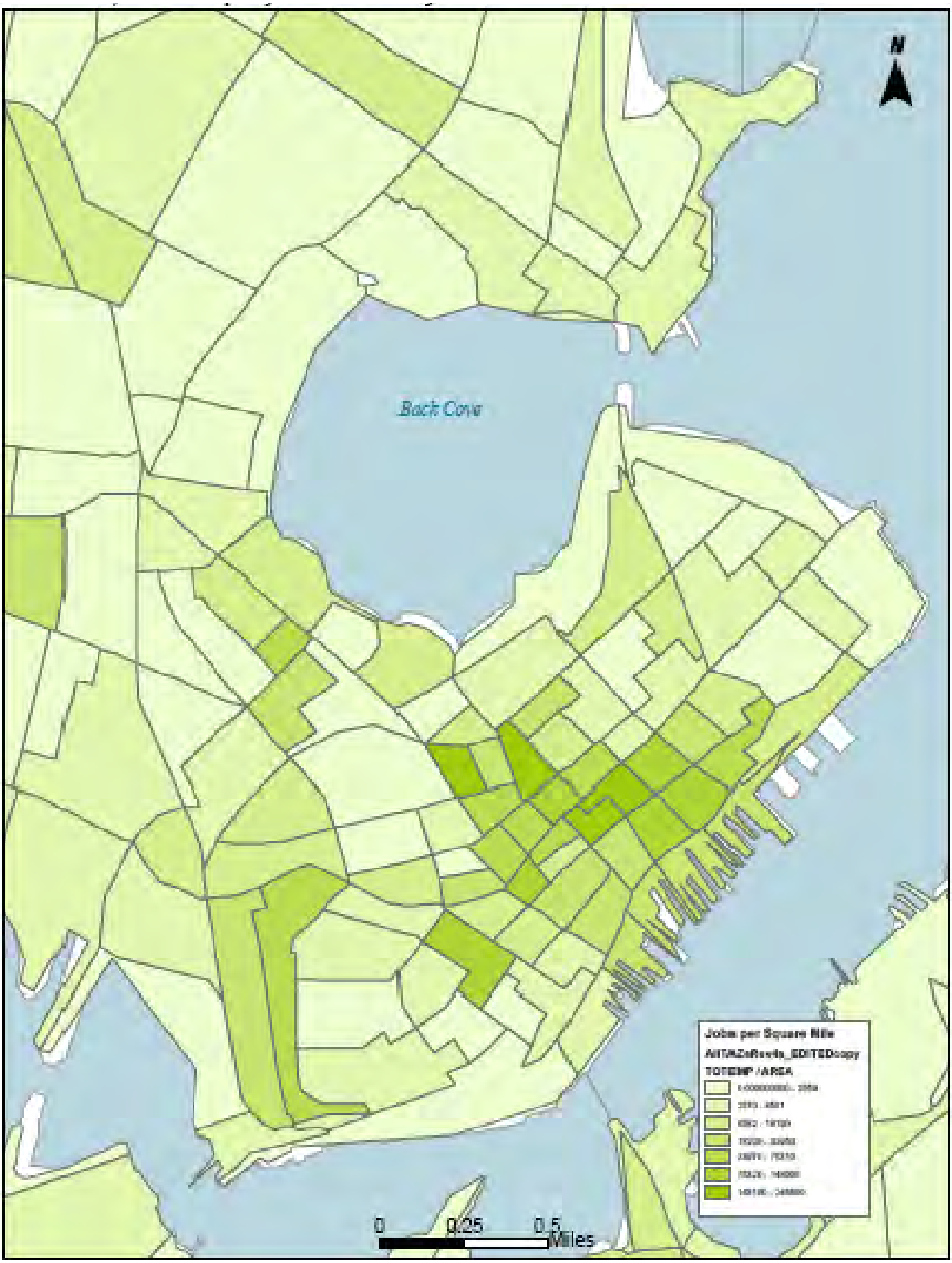


Figure 2-3 Portland Employment Density Map



Portland's Transportation Context

Transportation Systems

Transit

Portland's peninsula is served by five fixed route transit providers and one scheduled paratransit provider, as summarized in Figure 2-4 below. In addition to these public services, several private shuttles are operated, most notably Maine Medical Center's park and ride shuttles that service remote parking lots for employees.

Figure 2-4 Portland Peninsula Transit Providers

Transit Provider	Type of Service	Number of Routes
Greater Portland METRO	Fixed-Route Bus	Eight
South Portland Bus	Fixed-Route Bus	Three
ShuttleBus & ZOOM Turnpike Express	Commuter Bus	Two
Casco Bay Lines	Ferry	Five
Northern New England Passenger Rail Authority (Amtrak Downeaster)	Heavy Rail	One
Regional Transportation Program (ADAPT)	Scheduled Dispatch (Dial-A-Ride)	Thirty-Four

METRO and South Portland Bus form the primary fixed-route transit network for the Portland peninsula, with full-day service and local stops serving every peninsula neighborhood. Casco Bay Lines provides regularly scheduled inter-island ferry service for residents of the Casco Bay islands. Local dial-a-ride and dispatched paratransit service is provided by the Regional Transportation Program, Inc.

Commuters to Portland and the peninsula can ride ShuttleBus' Tri-City line from Biddeford, Saco, Old Orchard Beach, and Scarborough. Commuters on the Maine Turnpike can park and ride the ZOOM Turnpike Express buses during peak hours from Turnpike exits 32 and 36.

All local and commuter routes are mapped on Figure 2-5. In addition to these services, long-distance intercity services are provided by a number of carriers, including the Northern New England Passenger Rail Authority's Amtrak Downeaster service to Boston, Greyhound Bus Lines, and Concord Trailways.

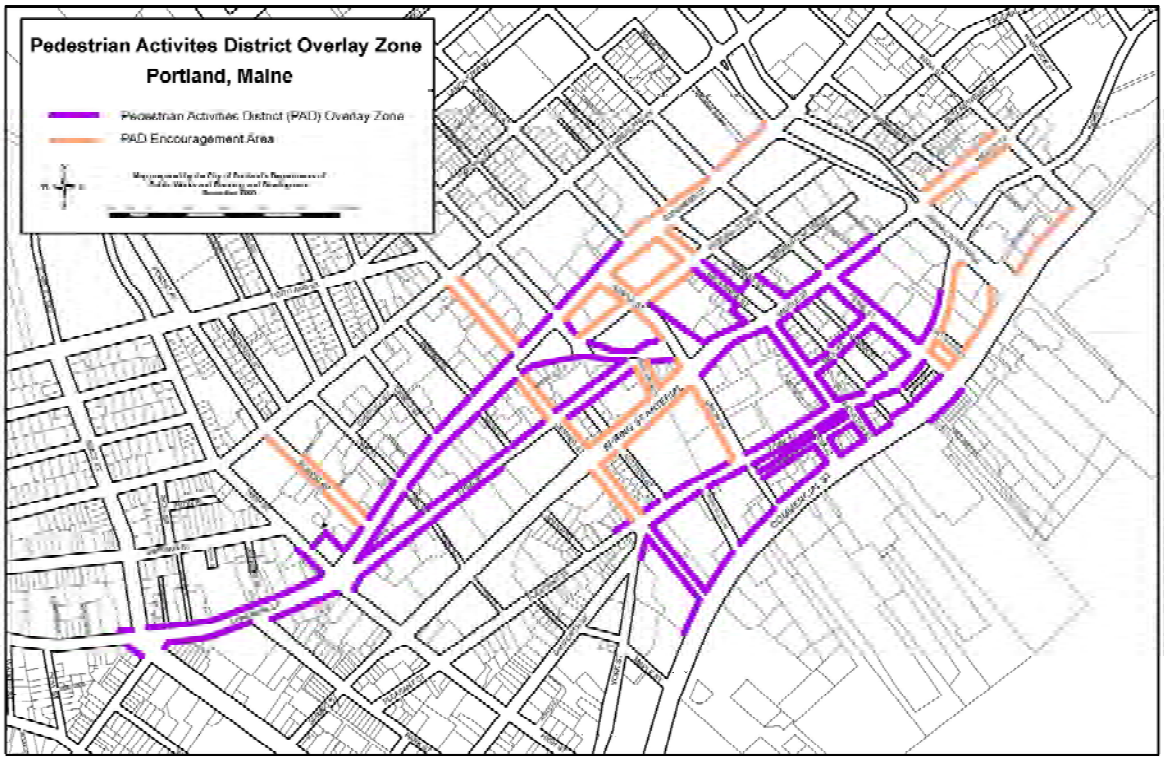
Figure 2-5 Transit Services on the Portland Peninsula

Walking

A notable percentage of Portland's workers walk to work (see section 2.4.2., below). However, due to years of de-emphasized pedestrian planning, barriers to walking do exist on the Peninsula. Among these are a lack of safe and maintained routes, comfortable conditions, and connected streets.

Attempts are being made to restore the infrastructure needed by pedestrians. As part of its zoning ordinance, the City of Portland created a pedestrian activities district (PAD) overlay zone, shown in Figure 2-6. This zone is designed to accommodate pedestrian-oriented uses at the street level in areas where a strong retail and pedestrian-oriented use pattern exists. The PAD promotes intensive mixed-use activities, enhanced open space, and an attractive street environment. In addition, PAD encouragement areas are zones capable of being converted to accommodate uses permitted in the PAD overlay zone.

Figure 2-6 Pedestrian Activities District Overlay Zone and Encouragement Area



Source: City of Portland Planning and Development Department

Bicycling

Despite the large-scale decentralization of recent decades, the neighborhoods of downtown Portland remain compact and within bicycling distance of major commercial destinations. However, bicycling is deterred by a lack of safe facilities and inadequate connections with other modes of travel. In the 1982 PACTS Regional Bicycle Plan, over 20 miles of bike routes were designated in Portland, but these routes were not actually converted into bicycle-friendly

roadways. Additionally, gaps in the proposed bike network exist along several of the arterial roads.

The City of Portland has a bike rack program that promotes and aids the installation of bicycle racks near retail businesses and other interested establishments in Portland.

Automobile

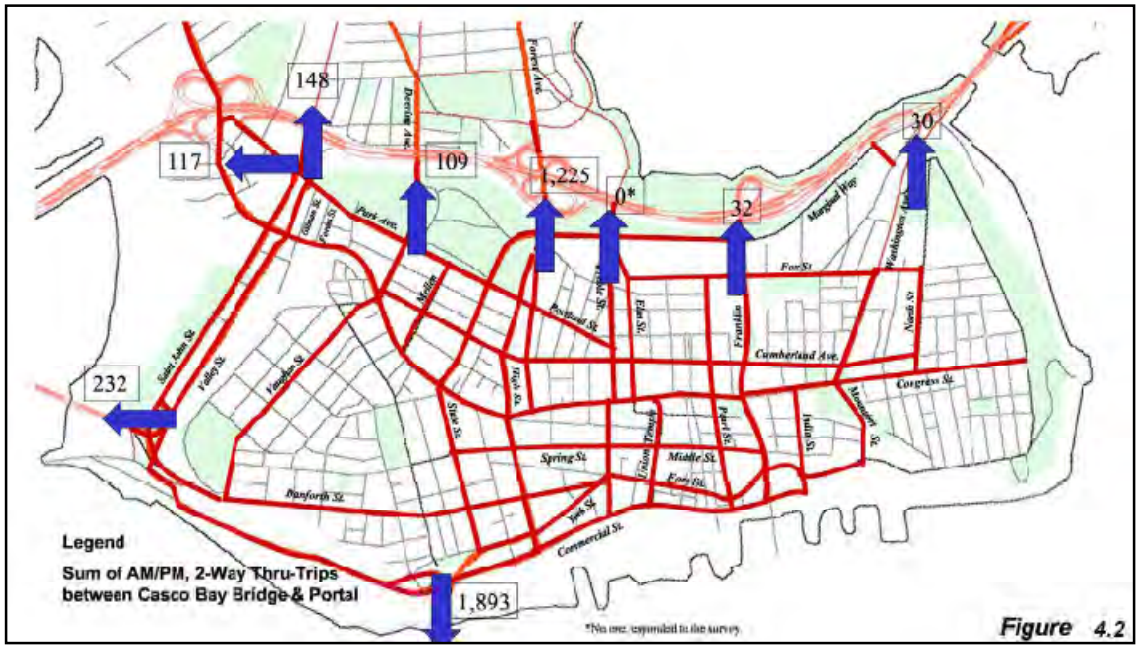
As a major employment center, downtown Portland experiences heavy traffic volumes. During the morning peak hour, approximately 17,000 vehicles cross the peninsula's gateways. The largest portion of these enters or exits at the Casco Bay Bridge and Forest Avenue. Sixty-four percent of these vehicles are driving to a destination on the peninsula, 30% are driving from the peninsula to a destination outside it, and 6% are passing through. In the afternoon peak, over 20,000 vehicles cross the peninsula's gateways, mostly at Forest Avenue or Congress/Park. Again, the vast majority of these trips have at least one end in downtown Portland: 59% are exiting the peninsula, 35% are entering it, and 6% are passing through.[5] Figure 2-7 summarizes volumes at these major gateways.

The highways passing through the peninsula see the greatest traffic volumes. At Tukey's Bridge, I-295 carries 90,000 vehicles per day, while at the South Portland/Portland line, it carries 69,000. Route 77 on the Casco Bay Bridge carries 34,000 vehicles per day. Closer to downtown, Congress Street (east of Waldo Street) and Franklin Street Arterial each see about 28,000 vehicles per day.[6]

Studies have found that many major intersections on the peninsula are at or near capacity. Congress Street at High Street and Forest Avenue at Marginal Way are near capacity, while Franklin Arterial at Marginal Way, Park Avenue at St. John Street, and State Street at Congress Street have already reached it.[7] Figure 2-8 also depicts congested intersections and roadways used to access the peninsula.

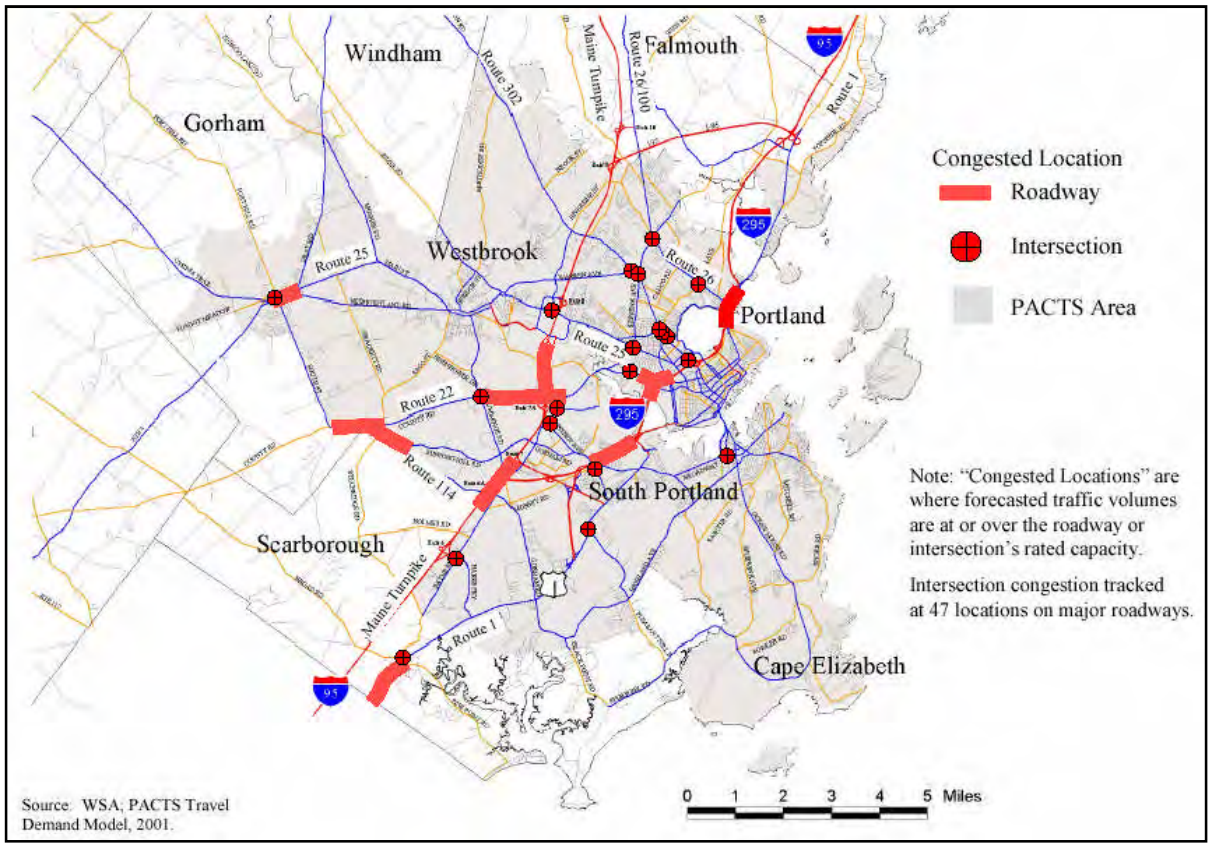
[5] Source: Portland Peninsula Traffic Study
[6] Sources: Portland Peninsula Traffic Study, Destination Tomorrow
[7] Source: Destination Tomorrow

Figure 2-7 Through-Traffic Movements on Casco Bay Bridge



Source: Portland Peninsula Traffic Study

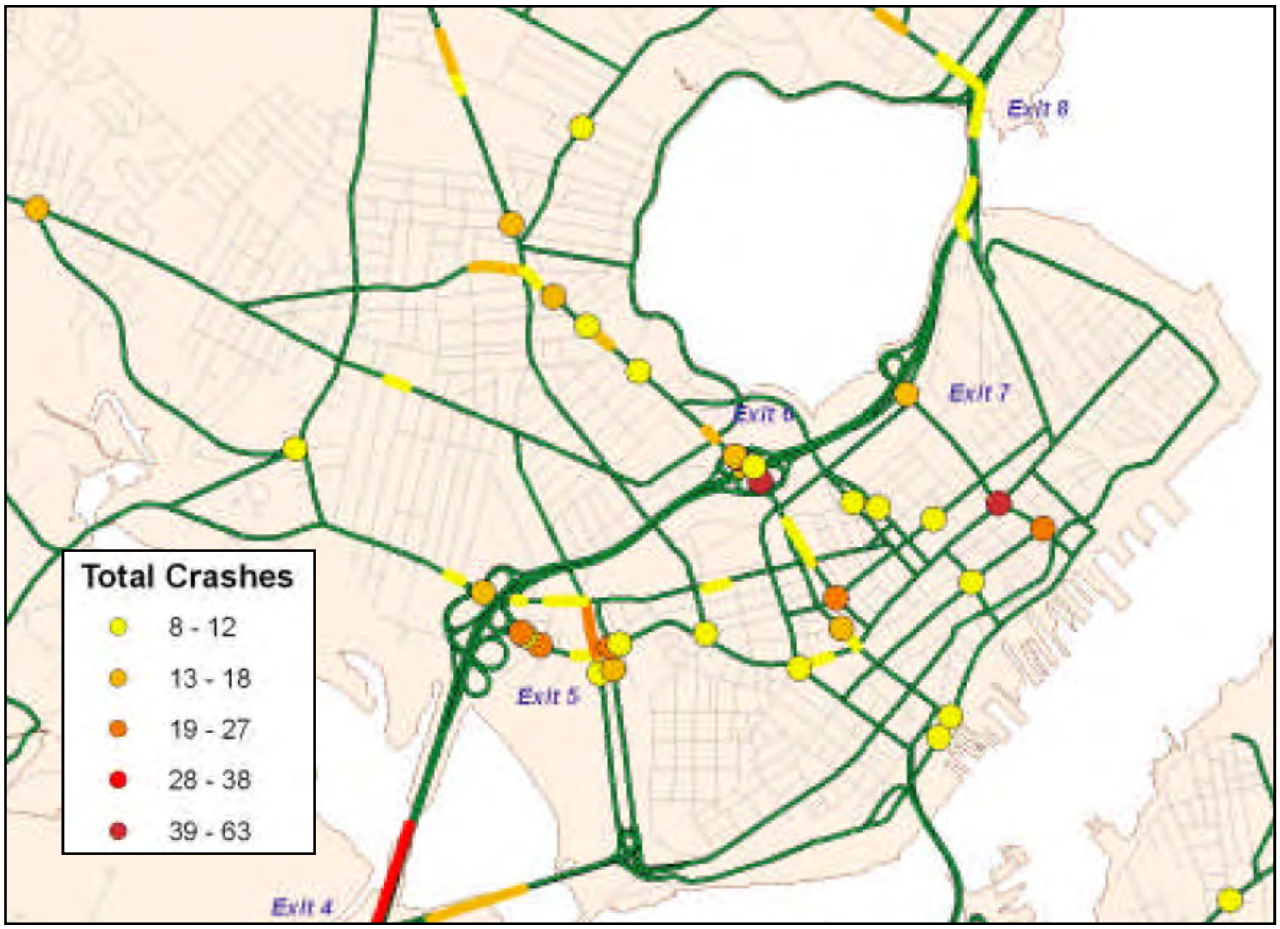
Figure 2-8 PM Peak Hour Congestion, Key Locations: 2000



Source: Destination Tomorrow

In addition to congestion problems, these heavy traffic volumes pose safety threats. Forty-four intersections and 25 road segments on the peninsula have been identified as High Crash Locations.[8] These are depicted in Figure 2-9.

Figure 2-9 High Crash Locations, December 2005



Source: Destination Tomorrow

[8] Source: Maine Department of Transportation

Parking

At present, Portland has approximately 7,000 publicly-accessible parking spaces in 14 garages, four of which are owned by the City. With an additional 4,290 spaces in 38 parking lots throughout the city, Portland has a total of 10,977 commercial off-street parking spaces. Off-street rates range from $1.00 to $5.00 per hour, and daily and monthly parking is available in most facilities. The locations of the Peninsula's parking lots and garages are shown in Figure 2-10.

In addition, the City of Portland maintains 1,450 timed parking meters. Most meter rates are $.05 for 4 minutes, $.10 for 8 minutes, and $.25 for 20 minutes.

The City administers several special parking permits and programs. Under the Park & Shop program, shoppers in downtown stores are given stamps redeemable for one hour of free parking with each purchase made. The Residential Sticker Program allows property owners in residential sticker zones to park for free in 1- and 2-hour zones within their neighborhoods. Also, motorists can apply for Street Occupancy Parking Permits, allowing them to park in a specified metered space, timed parking zone or loading zone for $10 per day per space. Finally, the parking forgiveness program automatically forgives the first ticket issued for parking at an expired meter, overtime parking or parking in more than one space within the downtown area every six months.[9]

In addition, the City's zoning ordinance requires a minimum number of off-street parking spaces for various land uses, as shown in Figure 2-11.

Figure 2-10 Downtown Off-Street Parking Facilities

[9] Source: City of Portland Parking Division

Figure 2-11 Minimum Off-Street Parking Requirements[10]

Use	Minimum parking requirement
Residential structures, new construction	2 spaces/d.u. plus 1 space/6 additional d.u.s or fraction thereof
Residential structures, alterations in existing structures	1 space/new d.u.
Motels	1 space/sleeping room
Hotels	1 space/4 guest rooms
Schools for children up to 15 years	1 space/instruction room
Schools for children 16 years and older	1 space/10 seats used for instruction or 1 space/100 square feet used for instruction
Hospitals	1 space/500 sq. ft.
Auditoriums, theaters, assembly halls, funeral homes	1 space/5 seats or 100 sq. ft. of assemblage space
Retail stores	1 space/200 sq. ft. of first floor area not used for storage, and 1 space/700 sq. ft. of each higher floor not used for storage
Restaurants	1 space/150 sq. ft. not used for storage or food preparation
Offices, professional and public buildings	1 space/400 sq. ft. not used for storage; in B-2 and B-2b zones, 1 space/334 sq. ft. not used for storage
Churches	1 space/5 fixed seats, or 1 space/25 sq. ft. of assemblage area
Business, manufacturing and industrial buildings not catering to retail trade and over 3,000 sq. ft.	1 space/1,000 sq. ft.
Beds	1 space/8 beds
Long-term and extended care facilities	1 space/5 beds, plus 1 space/employee normally present during one weekday morning shift
Lodging houses	1 space/5 rooming units; in R-5 zone, 1 space/2 rooming units
Group homes and emergency shelters	1 space/2 employees
Congregate care facilities	1 space/3 living units
Special needs independent living units	1 space/4 living units, plus 1 space/staff member normally present at any one time
Bed and breakfasts	1 space/2 guest rooms for the first 4 guest rooms, then 1 space/each additional guest room
Private clubs	1 space/150 sq. ft.
Community centers	1 space/150 sq. ft.; for community centers serving adjacent neighborhoods, 1 space/1,000 sq. ft.

Travel Characteristics

Mode Split

The majority of the peninsula's commuters drive alone (56.8%). However, a sizable portion also walks (19.7%) or carpools (11.8%). Nearly five percent ride the bus, 1.7% bicycle and 1.8% use another mode.[11] For comparison, the mode split for the entire Portland Metropolitan Statistical

[10] Source: City of Portland Planning and Development Division
[11] These numbers do not add to 100% because 3.3% of the population works at home (similarly, 4.3% of the MSA's population works at home)

Area (MSA) was included in Figure 2-12. A greater percentage of residents in the MSA drive alone, and fewer walk, ride the bus, carpool or cycle.[12]

Figure 2-12 Mode Splits for Portland Peninsula and Portland MSA

	Portland Peninsula	Portland MSA
Drive alone	56.8%	79.9%
Walk	19.7%	3.9%
Carpool	11.8%	9.4%
Bus	4.9%	1.2%
Bicycle	1.7%	.4%
Other	1.8%	1.0%

Auto Ownership

Almost half of all workers living on the peninsula[13] have one vehicle available, 32% have two vehicles, 15% have zero vehicles, and 6% have 3 or more vehicles available, as shown in Figure 2-13. A much higher percentage of the MSA's population has 2 or more vehicles available.[14]

Figure 2-13 Auto Ownership in Portland Peninsula and Portland MSA

	Portland Peninsula	Portland MSA
0 vehicles available	15%	3%
1 vehicle available	47%	22%
2 vehicles available	32%	52%
3+ vehicles available	6%	23%

[12] Source: Census Transportation Planning Package 2000
[13] In households
[14] Source: Census Transportation Planning Package 2000

Chapter 3. Goals and Objectives

Introduction

A solid set of goals and related objectives are valuable in any planning effort to guide analysis and the development of strategies and recommendations. Fortunately, the Portland Peninsula Transit Study has the benefit of strong precedent studies conducted over the past several years that have established a broad set of goals and objectives with a common purpose: to make the peninsula a sustainable community. The Committee has drawn upon the studies assessed in Chapter 2 to develop the goals and objectives for this effort, recognizing the valuable work that has gone forward to date.

Goals are intended to be the guiding principles for this effort, outlining the key concepts that have focused the efforts of the study team and the Transit Study Committee. A set of clear objectives support these goals and have served as guidance for the strategies that have been developed by the study team. In an effort to maintain continuity and consistency with the wealth of planning work that has preceded the Portland Peninsula Transit Study, most of the following goals and objectives were drawn from the "primary" background studies that have been completed since 1993 for the downtown peninsula. These include:

- Portland Peninsula Traffic Study
- Portland Comprehensive Plan
- Destination Tomorrow, PACTS Regional Transportation Plan
- PACTS Regional Transit Coordination Study
- Bayside Redevelopment Master Plan
- Eastern Waterfront Redevelopment Master Plan
- Time of Change: Portland Transportation Plan

The most appropriate goals and objectives from these studies were selected. The study team then organized objectives by topic area to assess their appropriateness for the scope of the Study. Additional objectives were developed that reflected the goals statements and the desires of the Committee, as expressed during the first two Committee meetings. The final list was modified to reflect current conditions and approved by the Committee as guidance for the Study. These are presented below with objectives organized by topic area.

Goals Statement

The Portland Peninsula Transit Study has the following goals:

- Maintain and enhance the livability of Portland's neighborhoods as the City grows and evolves through careful land use regulation, design and public participation that respects neighborhood integrity.
- Encourage sustainable development patterns and opportunities within the city by promoting efficient land use, conservation of natural resources, and easy access to public transportation, services, and public amenities.
- Improve the mobility, safety and accessibility of people throughout the region through a convenient, integrated, intermodal transportation system.

- Reflect a regional approach to transportation and land use planning and decision-making founded on effective communication and management of regional resources.
- Create a comprehensive transportation plan linked with land use planning policies in the City and region that guides decision-making for development and infrastructure investment.
- Strengthen the link between transportation investments and land use policies, and between decisions to preserve public investments and promote efficient land use patterns.
- Ensure that transportation planning fully respects and encourages pedestrian, bicycle, transit and other alternates to the single occupant vehicle.
- Establish sustainable land use patterns and a transportation system responsible to current and future generations in consumption of resources and protection of the environment.
- Enhance regional prosperity through support for the economic vitality of existing business and for economic development opportunities.
- Conserve and efficiently use non-renewable energy resources.

Objectives

The following objectives – organized by mode or topic area – help to provide a focus for the Study's recommendations:

Transit

- Enhance, maintain and, where appropriate, expand passenger transportation services to increase their accessibility and attractiveness to a larger number of people.
- Restructure transit services to better meet existing and future demand.*
- Encourage better coordination between providers.
- Identify opportunities to derive financial savings/increased revenues.
- Identify opportunities for better connections and transfers.
- Encourage consolidated planning and marketing.
- Improve coordinated transit information for the customer.
- Plan for short-term transit improvements that complement longer-term expansions.*

Non-motorized modes

- Reduce or eliminate barriers to efficient pedestrian and bicycle movements, especially between key origins and destinations on the peninsula.*
- Prioritize planning for pedestrians and bicyclists throughout the peninsula.*
- Identify improvements for key pedestrian and bicycle facilities on the peninsula that are sub-standard, missing, or in conflict with vehicle movements.*
- Integrate planning for bicycles and pedestrians into land development projects.*

* Source: Nelson\Nygaard.

Traffic

- Avoid building major new highways or increasing automobile volumes on existing roadways.
- Do not widen roads to increase capacity.
- Change the City's Ordinance so that level of service (LOS) criteria are not necessarily the driving force behind roadway improvements.
- Maintain efficient traffic flow, acceptable levels of service, limit air pollution and minimize the physical impact of roadway infrastructure on the environment.
- Make roadway operations and safety improvements at critical intersections a higher priority than roadway capacity improvements.
- Minimize the impact of through traffic on residential neighborhoods.
- Re-establish and utilize the street-grid pattern as an effective means of traffic dispersal.

Parking

- Discontinue subsidies for parking.
- Ensure that existing parking structures can serve multiple functions, connect with transit services, facilitate the flow of traffic with minimal impact on neighborhood residents, and can facilitate the conversion of surface parking lots to higher and better uses.
- Prepare parking management plans that maximize the utilization of existing resources before building more parking.*
- Ensure that parking for vehicles complements or assists other forms of transportation without being an obstacle to pedestrians, bicyclists or transit riders.*
- Encourage biking, walking and transit with active parking strategies, e.g. ridesharing, parking impact fees, shared parking supply, operational changes, etc.

Land Use

- Support the construction of housing, workplaces, services, transportation, recreation, dining and shopping, all within comfortable walking distance of each other and downtown areas.
- Identify improvements that will better serve Downtown, Bayside, the Amtrak train station, Ocean Gateway and other on-Peninsula transportation and economic development projects that are traffic generators and employment centers.

* Source: Nelson\Nygaard.

Chapter 4. Needs Assessment

Overview

The wealth of transportation system analyses conducted for the "primary documents" that were identified in the existing conditions review (Chapter 2) provide a strong understanding of the Portland peninsula's transportation system. Most studies identified clear areas where improvements were or would soon be necessary, especially with regard to automobile traffic. These thorough analyses indicated many system improvements that will improve overall mobility on the peninsula, and many of these recommendations have been incorporated in the City's plans for future infrastructure improvements and land development on the peninsula.

Needs identification is often an analytical process performed by transportation professionals who run models, conduct counts, take measurements and apply measures of performance. With extensive analysis having been conducted in recent years, the Committee recognized that additional analysis would have limited incremental value. Instead, the Committee realized that input from the users of the transportation system was not well-documented in earlier studies. Appreciating that some of the most valuable information about the quality of transportation systems can come from the actual day to day users, the Committee chose to base its needs assessment on the input of Portland's traveling public.

First Public Forum

Two public forums were conducted as part of the Portland Peninsula Transit Study. The first forum, held on February 21st, 2008, at the Portland Ocean Gateway Terminal, was designed to capture public input about the needs and opportunities of each mode of transportation on the peninsula. After a brief overview presentation, participants were asked to identify key needs by mode in four separate sessions for walking, biking, transit and driving. In each session, participants could draw on large tabletop maps or notepads to indicated areas of conflict, concern, missing infrastructure, etc. At the end of each session, participants also were asked to complete a simple survey that asked what was problematic about a particular mode and/or what discouraged them from using that mode more. Participants only had six available votes for more than six possible answers, forcing them to prioritize their answers. Fill-in responses were encouraged. These questionnaires can be found in Appendix B.

Participation in this forum was excellent. Over 90 responses were provided for each of the four surveys. Individual specific responses were recorded by participants at each of 10 large tabletop maps placed in the audience. These mapped details have been incorporated into an electronic database, and summaries of each comment can be found in Appendix C. The following summarizes the results of the surveys and marked-up maps by mode.

Walking and Biking Needs

Pedestrian and bicycle needs on the Portland peninsula centered around improving access and safety, both necessary if non-motorized transportation is to be a viable option. Enhancing the connectivity of the city's streets is crucial to achieving this goal. From the West End to Bayside to Downtown, participants noted that the restoration of the traditional street grid would increase the convenience of walking. Needed crossing improvements were also identified, particularly across I-295 and Franklin Arterial. In general, I-295 was noted to be a formidable barrier for pedestrians and cyclists moving between downtown and the USM area, and participants felt the highway and

its exchanges needed to be made safer for non-motorized travel. There was also a clear need stated for more bicycle lanes and paths on the peninsula, especially downtown and in Bayside.

For both pedestrian and bicycle infrastructure, the primary needs that were identified are broken into specific categories, then organized by neighborhood where applicable (USM & Bayside, Downtown and Waterfront, East End and West End).

Walking Needs

A variety of pedestrian needs were identified across the Peninsula. Though the City is attending to the aesthetic and land use-related needs of walkers in its Pedestrian Activities District, many of the points brought up in the forum returned to more basic ideas of safety and directness of routes. In addition, although many of the needs expressed relate to downtown, many others apply to the arterial roads that divide neighborhoods. This highlights the fact that a notable 20% of the Peninsula's commuters walk to work, many on the busy auto-oriented streets between neighborhoods, and their needs have not been adequately addressed.

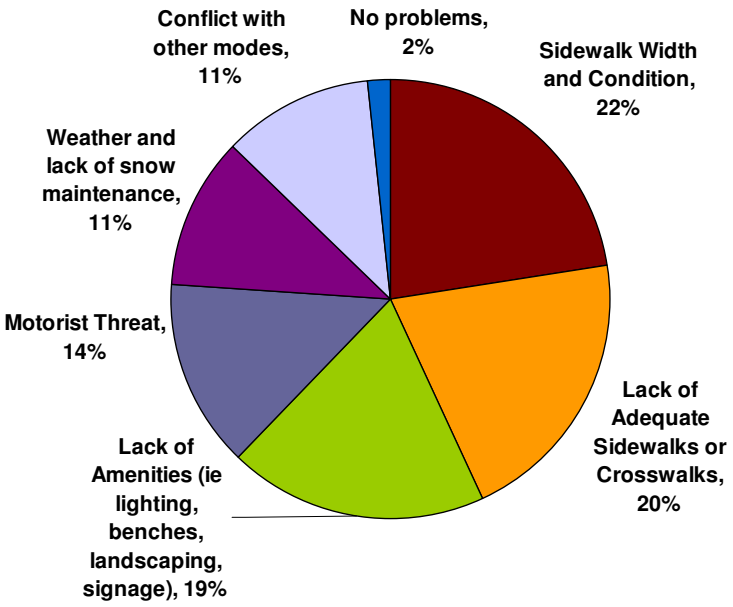
Questionnaire Responses

Figure 4-1 below summarizes the responses of participants to the walking questionnaire. Points are based on up to 6 votes per participant. Figure 4-2 summarizes all responses in seven broad categories.

Figure 4-1 Walking Questionnaire Responses

Walking Issues (90 responses)	Total Points	% of Mode Responses
Sidewalk condition	87	19%
Motorist threat	64	14%
Car turn conflict	40.5	9%
Precipitation Protection	39	8%
Lack crosswalks	35	8%
Poor lighting	29	6%
Lack sidewalks	26	5.6%
Lack landscaping	23.2	5%
Street crossing delay	19	4%
Narrow sidewalks	17	4%
Lack signaled crosswalks	15	3%
Lack benches	13	3%
Lack of ice and snow removal	12	3%
Lack/condition curb cuts	11	2%
Conflict w/ other modes and lack of priority	11	2.4%
Lack retail	9	2%
No problems	8	2%
Lack wayfinding tools	3	1%
Inconvenient compared to other modes	2	0.4%
Total	**463.7**	**100%**

Figure 4-2 Summary of Walking Responses



While responses covered a wide range of pedestrian circulation concerns, it should be noted that the impact of snow and other weather-related factors were frequently mentioned and acknowledged as a concern by nearly all participants.

Marked-Up Map Responses

Figure 4-3 is a graphical summary of all responses received during the walking needs assessment session at the first public forum. This information is documented in Access and GIS formats for analysis. The highlights of these responses include:

Street Reconnections

The restoration of Portland's traditional grid street pattern is a top priority to enhance pedestrian access. Where it has been broken, travel time and inconvenience increase for those traveling on foot. Key points needing to be reconnected are streets that dead-end near Franklin Arterial, as well as Wilmot and Cotton Streets.

Crosswalk Markings

Crosswalk markings are needed to improve pedestrian safety on major roads. Where crosswalks are missing, pedestrians are forced to walk out of their way to cross the street, or to cross unsafely. Intersections along Franklin Arterial, Federal Street, I-295 and Commercial Street in the vicinity of High and Park Streets are particularly in need of this type of improvement.

Other Pedestrian Needs

Many residents expressed a desire to see the I-295 exchange with Forest Avenue removed. Another frequently-cited recommendation was to create or improve waterfront promenades.

Figure 4-3 Walking Needs Identified at Public Forum

Biking Needs

Creating bicycle lanes and paths on the peninsula was by far the most often-cited bicycle-related need in the public workshops, signaling that the City should revisit the never-implemented 1982 PACTS Regional Bicycle Plan. However, it is imperative that a revised plan consider the peninsula's arterial roads as candidates for bike infrastructure. The majority of streets identified as needing lanes and paths are main roads, where cyclists are particularly vulnerable to high volumes of fast-moving traffic.

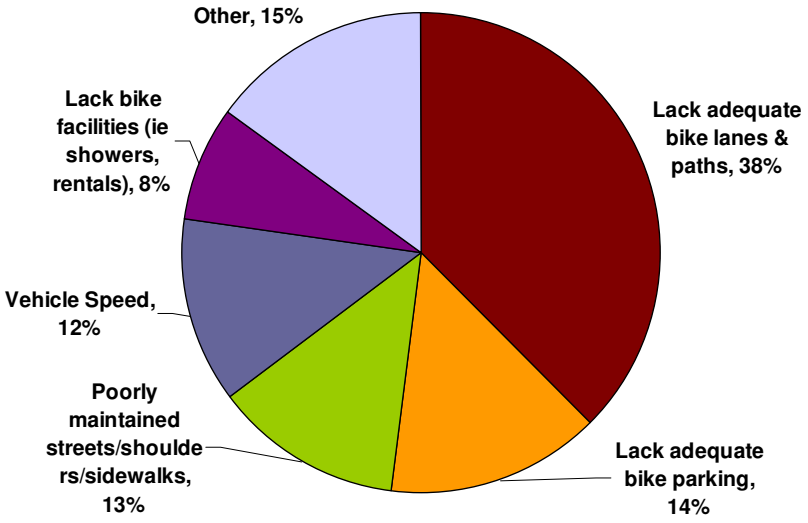
Questionnaire Responses

Figure 4-4 below summarizes the responses of participants to the biking questionnaire. Points are based on up to 6 votes per participant. Figure 4-5 summarizes all responses in six broad categories.

Figure 4-4 Bicycling Questionnaire Responses

Bicycling Issues (90 responses)	Total Points	% of Mode Responses
Lack bike lanes	70	16%
Vehicle speed	54	12%
Poorly maintained streets/shoulders	49	11%
Poorly designed bike racks	3	1%
Poor wayfinding	1	0%
Need more accommodating facilities, roads, attitudes and bike share	10	2%
Lack work showers/changing rooms	24	5%
Lack secure indoor parking @ destination	24	5%
Lack off-street paths	59	14%
Lack bike rentals/borrow	10	2%
Lack bike racks @ destination	36	8%
Increase bike lanes	35	8%
Inconvenient (distance, cost, weather, carrying loads)	25	6%
Difficulty w/bus racks	2	0%
Difficulty sidewalk biking	7	2%
Dangerous	23	5%
Conflict with other modes	5	1.1%
Total	**437.0**	**100%**

Figure 4-5 Summary of Bicycling Responses



Marked-Up Map Responses

Figure 4-6 is a graphical summary of all responses received during the bicycling needs assessment session at the first public forum. This information is documented in Access and GIS formats for analysis. The highlights of these responses include:

Bicycle Lanes

There are few dedicated bicycle lanes on the peninsula currently. Bicyclists must ride with vehicular traffic, often during heavy volume conditions, which makes some feel unsafe and discourages others from cycling at all. More lanes would increase the feasibility of bicycling. Residents cited a particularly great need along Congress Street, Commercial Street and Washington Avenue. Specific streets identified were:

- **USM & Bayside:**
  - Franklin Arterial
  - Congress Street
  - Brighton Avenue
  - Park Avenue between Deering Avenue and State Street
- **Downtown & Waterfront:**
  - Franklin Arterial
  - Congress Street
  - Commercial Street at Transportation Center and hubs
- **East End:**
  - Congress Street
  - Washington Avenue
- **West End:**
  - Congress Street
  - St. John Street
  - Valley Street

Bicycle Paths

Similarly, off-street bicycle paths would increase the safety and convenience of cycling. While many of the locations identified below by forum participants cannot accommodate a separated off-street facility, the desire for safe bicycling facilities is clear. Paths were desired along the following corridors:

- **USM & Bayside:**
  - I-295
  - Franklin Arterial
  - Congress Street
  - Marginal Way
  - State Street
  - Elm Street
  - Preble Street
- **Downtown & Waterfront:**
  - Franklin Arterial
  - Congress Street
  - High Street
  - Elm Street
  - York Street between High and State Streets
  - Casco Bay Bridge
- **East End:**
  - Congress Street
  - Washington Avenue
- **West End:**
  - Congress Street
  - Danforth Street at Vaughn Street

Other Bicycle Needs

Improved signal timing is a priority for cyclists, particularly along the length of Congress Street. Other needs signaled by residents included bike parking in the downtown area, bike comfort stations and bike boulevards.

Figure 4-6 Bicycling Needs Identified at Public Forum

Transit Needs

In order for Portland residents to ride transit more regularly, participants stated that they must see improvements in the convenience and comfort of service. More frequent service is crucial to making transit a viable option. Additionally, participants felt transit should better serve major origins and destinations. Many felt that Portland's transit must also be made more user-friendly, with better maps and real-time information. The lack of bus shelters to shield passengers from the city's inclement weather is problematic. Furthermore, the METRO Pulse terminal was identified as a weak point in the transit system. According to participants, this downtown hub should be made more comfortable and accessible if the system is to attract new riders and meet the needs of existing ones.

Questionnaire Responses

Figure 4-7 below summarizes the responses of participants to the transit questionnaire. Points are based on up to 6 votes per participant. Figure 4-8 summarizes all responses in eight broad categories. Primary responses included:

More Frequent Service

Twenty-three percent (23%) of survey respondents cited the infrequency of service as a reason why they do not use transit more often. In the specific comments, Route #1 was mentioned as a candidate for more frequent service.

Revised Routes

Eleven percent (11%) of respondents noted that there is no service in the areas they need to reach, or that service does not run late enough.

Clearer Information

Ten percent (10%) of survey respondents are discouraged from using transit by "complicated maps and schedules," and 6% by a lack of real-time information. Specifically, METRO Pulse was singled out as needing clearer signage, maps and announcements.

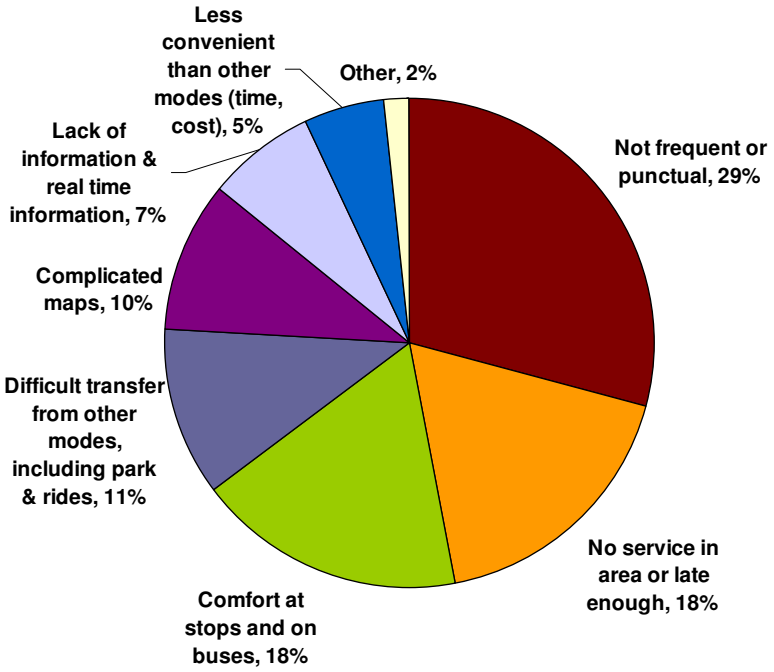
Added Bus Shelters

Nine percent (9%) of survey respondents identified the lack of bus shelters as a disincentive to take transit. This problem was cited specifically at USM and Libbytown METRO stops.

Figure 4-7 Transit Questionnaire Responses

Transit Issues (92 responses)	Total Points	% of Mode Responses
Not frequent	109	23%
No service in area, service not late enough	52	11%
Complicated maps & schedules	47	10%
Lack shelter	43.5	9%
Lack Real-time info	30	6%
Not enough park and ride parking	29	6%
Not punctual	28	6%
Difficult bus-rail transfer	23	5%
Not near work	19	4%
Bus stops inadequate, inconvenient, poorly lit, no crosswalk, no snow removal, no posted info	17	4%
Not comfortable/welcoming	16	3%
Not near home	13	3%
Don't ride, other modes more convenient	10	2%
Stops too often	8.2	2%
Other (including fare and routing suggestions,)	8	2%
High fares	6	1.3%
Difficulty boarding & exit	5	1%
Lack of information	4	0.9%
Fare paying too slow	2	0.4%
Total	**469.7**	**100%**

Figure 4-8 Summary of Transit Responses



Marked-Up Map Responses

Figure 4-9 is a graphical summary of all responses received during the transit needs assessment session at the first public forum. This information is documented in Access and GIS formats for analysis. The highlights of these responses include:

Revised Routes

Though service hours were not discussed in the written comments, the public had a plethora of suggestions regarding where service is provided. A need for new routes was identified throughout the Peninsula, but focused on the Downtown, Waterfront and East End neighborhoods. The most requested corridors for new routes include:

- Franklin Arterial
- Commercial Street
- Congress Street (bus or trolley)
- Washington Ave.
- State Street
- Eastern Promenade

Citizens were particularly interested in improved transit connections to the Casco Bay Ferry Terminal and METRO Pulse.

In the West End, participants emphasized a need for new routes along Congress Street and St. John Street, and on Fore River Parkway connecting to Mercy Hospital. Added routes were also recommended in the USM & Bayside areas along Marginal Way, Franklin Arterial, Deering Ave., Forest Ave., Preble Street, and Elm Street. The potential for trolleys as a convenient transit mode in the area of Deering Oaks was discussed as well. In addition, the need for a commuter bus to outer Portland from USM/Bayside, the East End and the West End was cited.

Outside of the Peninsula, the most pressing need for new routes was identified along Congress Street around Outer Brighton and USM. Also mentioned were the connections between Westbrook and the Maine Mall and between Outer Foxes and Congress Street; and a possible express bus to Yarmouth, Freeport and Brunswick along Route 26.

On existing routes, forum participants requested some added stops. Most notably, this need was identified around the USM campus, especially at the intersections of Bedford and Durham Streets and Bedford Street and Forest Ave. A new stop was also recommended at Marginal Way and Elm Street.

Improved METRO Pulse Facility

Aside from lacking adequate passenger information as previously mentioned, Portland's main downtown bus terminal was cited as being an uncomfortable facility, and as not having sufficient queuing space.

Other Transit Needs

Another common recommendation for improving Portland's transit service was to make bus routes more direct. In particular, citizens requested that the loop in the Congress Street route be eliminated. Additionally, the St. John Street route and the route between Elm Street and the Maine Mall need to be less circuitous.

Also mentioned in the public meeting were dedicated BRT lanes on Congress Street and improving the connection to the Maine Mall.

Figure 4-9 Transit Needs Identified

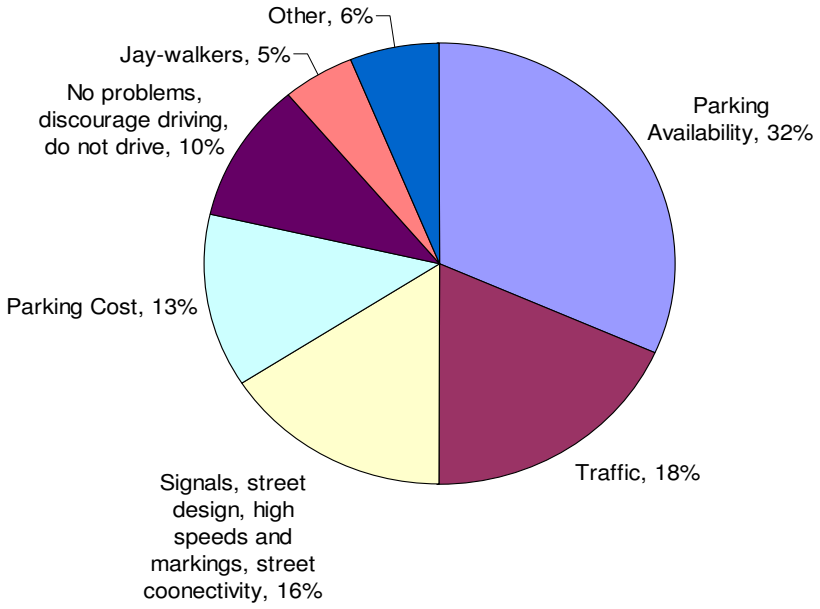
Driving Needs

Driving and parking concerns also were discussed at the first public forum. While traffic congestion and operations dominated about 40% of participants' comments, parking cost and availability accounted for a greater percentage (45%) of participants' concerns about driving. Figure 4-10 below summarizes the responses of participants to the driving questionnaire. Points are based on up to 6 votes per participant. Figure 4-11 summarizes all responses in seven broad categories.

Figure 4-10 Driving Questionnaire Responses

Driving Issues (90 responses)	Total Points	% of Mode Responses
Traffic	60	18%
No on-street parking @ destination	13	4%
Lack available on-street parking	43	13%
Parking meter cost	15	5%
Lack street connectivity	12	4%
Jay-walkers	16	5%
Too slow speed limit	0	0%
No garage/lot spaces @ destination	7	2%
Lack available garage/lot parking	13	4%
Garage/lot cost	26	8%
Too many traffic signals	13	4%
Signals, street design, high speeds and markings	27	8%
No car share or carpooling incentives	19	6%
Not enough parking, more remote parking or garages unsafe	27	8%
Car ownership costs	1	0.3%
No problems, discourage driving, do not drive	34	10%
Total	**326.0**	**100%**

Figure 4-11 Summary of Driving Responses



Chapter 5. Walking and Biking Strategies

Walking and biking on Portland's peninsula is an excellent way to get around such a small geographic area. Given typical traveling delays by car, walking and biking often represent the quickest way to travel in downtown Portland. While the City has maintained a robust sidewalk system, many critical gaps continue to discourage walkers, as noted during the first public forum. Meanwhile, Portland's biking system is largely inadequate, even though bicycling is an increasingly popular mode on the peninsula.

The transportation network associated with successful downtowns must be carefully balanced to create a safe and inviting environment for non-motorized modes. Walkable environments include not just sidewalks, but elements like seating, signage, and trees that make the area inviting. Inviting bicycling features include clear marked facilities and signing that warn motorists to bicycles' presence, as well as parking spaces that are at least as plentiful and convenient as automobile parking. A successful multi-modal downtown must accommodate pedestrians, bicycles, buses, delivery trucks and cars equally. Today in Portland, the automobile dominates transportation. This dominance plagues the peninsula's ability to balance modes and promote sustainable development. Therefore, a significant focus of the Portland Peninsula Transit Study has been on walking and biking strategies that overcome the barriers identified in the first public forum.

Existing Pedestrian Network

Pedestrian access maintains the urban vitality needed to support the dense mixed-use character of the peninsula and proposed transit-oriented developments (TODs). Successful pedestrian networks offer high levels of pedestrian service in four key measures:

- Safety
- Convenience
- Comfort
- Attractiveness

Safety involves keeping vehicle speeds, pedestrian exposure to traffic, and vehicle volumes down to levels that reduce conflicts between cars and people. Convenience entails delineating clear paths between destinations through design gestures and helpful wayfinding, while comfort means providing adequate walking paths and sidewalks. Attractive environments encourage more people to walk by providing use, beauty, and company.

Currently, the peninsula contains a dense network of sidewalks and crosswalks that facilitates pedestrian movement. Sidewalks are mostly continuous, and several major sidewalks feature attractive brick surfacing that enhances the pedestrian environment.

However, many key deficiencies were noted (see Chapter 4). Curb ramps compliant with the Americans with Disabilities Act are not found at all intersections. This presents challenges for those with mobility impairments, and it even limits the ease of crossing streets by those without impairment. Crosswalk markings are frequently worn away due to motorized traffic or are missing altogether. Narrow sidewalks also were noted as a concern, generally as a result of obstructions that narrow their effective width. Many forum participants complained that motorists often didn't yield to pedestrians in crosswalks. A full listing of noted concerns can be found in Appendix C.

Walking Strategies

The development of walking strategies by the consulting team was largely guided by the results of the first public forum. Based on the wide range of comments received, as well as input from the Peninsula Transit Committee, a number of important guiding principles evolved that should underlie all improvements to the peninsula's pedestrian network.

Pedestrian Principles

Clear and accommodating pedestrian access between destinations is critical to the success of the Portland peninsula. In order to create a welcoming active environment to support safe residential areas and local retail activity, pedestrians must find walking to and from their homes and places of work an easy, pleasurable, and un-complicated experience. Several pedestrian accommodation principles should be maintained on the peninsula. These principles are described below.

Connectivity

The roadway system should provide overall connectivity. For pedestrians, this means a continuous sidewalk or side-path network with frequent street-crossing opportunities that do not require pedestrians to travel out of their way to reach destinations. Once a pedestrian has reached a crosswalk, a clear series of design characteristics should be followed:

- **Clarity:** The crosswalk should make it obvious to motorists that pedestrians can be expected to cross, and pedestrians should be guided to the designated crosswalk;
- **Predictability:** Crosswalk placement should be predictable, and should increase in proximity to transit corridors, terminals and other key destinations where more pedestrians can be expected to cross;
- **Visibility:** Crosswalks should be clearly marked, signed, and illuminated so that motorists and pedestrians are visible to each other;
- **Permanence:** Crosswalks should be well-maintained and permanent elements of the transportation network. Thermoplastics, inlay tape or regular painting should be standard, with materials changes where appropriate, given weather conditions.
- **Limited Exposure:** There should be limited conflicts with traffic, and crossing distances should be reasonably short or made shorter through the incorporation of curb extensions or pedestrian refuges;
- **Clear Crossing:** The crosswalk should be free of all obstacles or hazards and is accessible to all users. Snow clearance, especially at curb ramps, is essential to wintertime pedestrian activity.

Safety

To maximize safety, optimal vehicle speeds should be 20 miles per hour, with a posted speed limit of no greater than 25 MPH[1]. Among the features that can encourage adherence to posted speed limits are:

- Rigorous enforcement of existing speed limits;

[1] Rigorous analysis of data from ITE demonstrates that the survival rate for pedestrians struck by a motor vehicle traveling at 40MPH is only 15%. At 30MPH, the survival rate increases to 55%. At 20MPH, the survival rate exceeds 95%. Therefore, 25MPH is considered an absolute maximum acceptable traffic speed in urban communities.

- Utilization of portable or permanent radar devices which show the posted speed limit and the motorist's actual speed;
- Traffic calming features to narrow the roadway, including curb extensions, center medians and on-street parking;
- Striping or other visual treatments to visually reduce travel lane widths, including bicycle lanes, edge lines, and other innovative treatments; and
- Incorporating 25 MPH design speeds in new road construction.

Sight distance and sight lines are another consideration. Vehicles parked near crosswalks can create sight line restrictions. To deal with this issue, a minimum no-parking zone of 20-feet on the near and far side of the crosswalk is recommended at all intersection legs. This no parking zone can also be accommodated through the provision of curb extensions, which physically prohibit vehicles from parking too close to the crosswalk and also allow pedestrians to "step out" into the intersection to see around parked cars. Curb extensions also reduce crossing distance, which improves pedestrian compatibility.

Ensuring adequate lighting is another crucial element in providing adequate pedestrian safety. Lighting should be placed at regular intervals along a roadway to provide a uniform level of light, and should be present at all crosswalks to maximize pedestrian visibility. In commercial districts, pedestrian-scale lighting should also be considered to increase security and create a sense of "place".

Design elements such as shorter blocks, narrower rights of way, curb extensions at intersections, less frequent curb-cuts, and driveways that give visual emphasis to the continuation of the sidewalk are a few basic design elements that can minimize pedestrian risk exposure. Turning options should be minimized for vehicles along key pedestrian routes.

Accessibility

The needs of all users should be accounted for when designing pedestrian facilities. This means ensuring that all Americans with Disabilities Act (ADA) requirements are met and that the needs of individuals with mobility limitations are given proper consideration. This is particularly critical in curb ramp and driveway design. Designing facilities in compliance with ADA also results in more accommodating facilities for able users.

Traffic Engineering Elements

Traffic elements such as traffic and crosswalk signals, crosswalk and curb ramp treatments, and signal timings should be designed with pedestrians in mind and should maximize convenience, comfort, and safety levels. In terms of crossing times, cycle lengths should be minimized so that pedestrians do not have to wait an unreasonably long time to cross. Related to this, crossing times should be adequate to allow pedestrians to cross in a reasonable amount of time (assuming the average pedestrian walks at 4 feet per second). The use of concurrent and protected pedestrian crossing phases where feasible is preferred over push-button actuated pedestrian phases that usually cause significant delays to pedestrians, frequently resulting in non-compliance with signal indications due to long waits. Any concurrent phase should also have a leading pedestrian interval (LPI). Where concurrent or protected phases are not feasible, exclusive pedestrian phases should be accommodated on recall without the use of actuation buttons.

Landscaping and Aesthetics

Aesthetics play an important role in supporting these uses. Sidewalks and plazas should be visually appealing and physically inviting. Appealing streetscape design can be an effective means of announcing the uniqueness of the walking environment, and encourage more walking trips on the peninsula. When combined with quality land uses, such aesthetics can play an important role in drawing and maintaining the more crowded urban vitality that marks a successful downtown.

Convenience

All sidewalks should be well maintained, safe, and well-lit. They should be sufficiently broad to comfortably handle the expected pedestrian traffic peaks. Signage should be adequate to lead individuals, especially those unfamiliar with Portland, to all major destinations. Superior pedestrian levels of service along connecting routes between major origins and destinations should be emphasized. Land uses should provide the local community with daily needs, minimizing regular out-of-area trips for goods and services and minimizing automobile usage. Uses should be mixed to maximize trip-chaining opportunities and encourage more activity on the peninsula. Uses should also be strategically placed to maximize pedestrian-trip efficiency, such as placing dry cleaners and day care facilities near transit hubs.

Comfort

Sidewalks should be wide enough for two pedestrians to walk abreast. The minimum width for two people to walk comfortably side by side is about 5 feet (see Figure 5-1). In snowy environments like Portland's, this is the absolute minimum tolerable width for two single people to pass. For strolling pairs to be able to pass each other in stride, a minimum of 10 feet of sidewalk width is necessary. In places defined by high pedestrian volumes and buildings that directly abut sidewalks, widths up to 20 feet are commonly recommended, though a more modest width of 10-15 feet can add a sense of vitality. While these widths exist on Congress Street, they are not possible in the Old Port. On streets with regularly heavy pedestrian volumes and lower vehicle volumes, consideration should be given to narrowing streets or closing them to vehicles. Places to sit and to wait are also a key component of a pedestrian-friendly environment.

Figure 5-1 Effective Sidewalk Width in an Urban Village

Fair Lawn, New Jersey

Examples & Resources

As Portland continues its comprehensive planning for pedestrians, several best practice guides have been developed by other communities in North America that could guide design language for future sidewalks, crosswalks and land developments.

- **Calgary, Alberta** - The City of Calgary's "TOD Policy Guidelines" provides detailed principles on pedestrian access in its "Pedestrian Oriented Design" section including:
  - Providing quality pedestrian connections;
  - Emphasizing a compact development form;
  - Locating pedestrian-oriented uses at the ground level;
  - Producing Human scaled architecture; and
  - Incorporating all-season design.
- **Kansas City, KS** – The city developed a pedestrian Level of Service model based on five measures:
  - Directness – pedestrian connections between key destinations and transit;
  - Continuity – conditions of pedestrian pathways;
  - Street Crossings – ease and safety of pedestrian crossings;
  - Visual Interest and Amenity – aesthetics and environment; and
  - Security – lighting and sight lines.

Recommended Pedestrian Network Improvements

The Committee recommends that all of the walking needs identified during the first public forum be addressed as soon as possible. Unfortunately, this represents a significant amount of infrastructure improvements with a cumulative expense of millions of dollars. Therefore, improvements must be prioritized, with more critical improvements occurring sooner. Determining which improvements are most important is subject to a wide variety of immediate needs represented by a wide variety of users. The Peninsula Transit Committee recognizes that all improvements are of critical importance to certain groups of users. Defining a comprehensive strategy that addresses as many needs as possible can be difficult.

In order to develop a strategy for addressing the identified walking network needs, the Committee recommends a two-pronged approach that can cost-effectively develop short-term solutions while categorizing costly improvements according to the impact they may have. This approach involves broader peninsula-wide efforts that can occur in the immediate-term, as well as specific infrastructure improvements that can occur in the immediate, short and long terms.

Immediate-Term Strategies

The following strategies are intended to be begun as soon as possible, recognizing their minimal cost.

Peninsula-Wide Programs

Under the City's direction, the following suite of pedestrian priority programs can be implemented.

"Feet First" Development (Recommendation 5.1)

New land development in Portland has a large stake in how pedestrians circulate and access new projects. An active part of Portland's efforts to reduce vehicle traffic and encourage walkability should be to incorporate this priority in all new land development. While the cost for many recent pedestrian improvements have been shared by new development, there is no stated policy for private contributions to the pedestrian network that provides access to new development. As part of its normal sidewalk reconstruction requirements for new development, Portland's Public Works Department also should require basic pedestrian improvements, including:

- Pedestrian-scale lighting
- Pedestrian signal improvements
- Level sidewalks across all curb cuts
- Detectable warning strips at curb ramps
- Street furniture
- Preservation of minimum effective sidewalk widths of no less than 5-feet

Pedestrian Signalization Program (Recommendation 5.2)

Portland has an extensive system of pedestrian signal indications at a majority of its peninsula traffic signals. Several incorporate the latest in high-visibility LED and countdown timing indications. Expanding the use of these technologies to all traffic signals is recommended, but the cost is extremely high.

An extremely effective interim strategy that can greatly improve the quality of all existing pedestrian signals involves relatively inexpensive signal re-timing, where relatively modern signal controllers exist. The following techniques can have a dramatic effect on the comfort and convenience of crossing streets in Portland, even where newer pedestrian indications have been installed:

- **Pedestrian Phase Recall.** Portland should systematically eliminate the need for push-button actuation of signals by bringing up every signal's pedestrian phase automatically every cycle. From both a motorist's and pedestrian's perspective, this adds a great degree of predictability. For pedestrians, average crossing delays are reduced dramatically as a crossing indication can come up before or as a pedestrian arrives at the intersection. For the motorist, the resulting fixed cycle lengths can allow the City to sequence adjacent signals on several corridors to provide green light progression in peak directions, reducing queue impacts while forcing lower traveling speeds. However, additional intersection delay remains possible at many locations that currently use push-buttons if the City does not also make an effort to consider shorter cycle lengths, split protection, concurrent phasing, or leading pedestrian intervals.
- **Short Cycle Lengths.** Traditional traffic signal programming has focused on moving more cars per hour to reduce the level of service of intersections. Where volumes have forced additional travel and turning lanes, additional turning phases have often resulted. These priorities often result in very long cycle lengths exceeding two minutes. Unfortunately, this delay produces two undesirable effects: excessive pedestrian crossing delays and long vehicle queues. Recent progressive downtown traffic signalization policies have recognized that preserving low vehicle levels of service often works against broader municipal goals. Cities such as San Francisco, Cambridge, and Portland Oregon have reduced cycle lengths citywide to 90, 80 and even 60 seconds. This results in a worse

vehicle level of service, but significantly improved pedestrian crossing delays. Furthermore, this strategy reduces vehicle queues that accumulate during long cycles, requiring less lane storage – a necessity in compact downtowns like Portland's. The City should actively reduce cycle lengths across the peninsula.

- **Split Protection.** A frequent failing of signals at one-way streets is lumping the indication for parallel crossings on the same phase. While this is simple signal design, it ignores the fact that pedestrians can safely cross protected in front of stopped traffic, even if the parallel crossing on the other side of the street is experiencing heavy turning movements onto the departing one-way street. Splitting the parallel crossings typically requires only a simple re-wiring in the controller box.
- **Concurrent Phasing.** Concurrent crossings occur when pedestrians cross a street at an intersection parallel to vehicular traffic crossing the same street. While this is a common occurrence and fairly natural for most walkers, many communities have opted to install fully-protected "all-stop" pedestrian phases to avoid any potential motor vehicle conflicts. Unfortunately, while ostensibly pedestrian-oriented, this policy conveniently ignores other nearby pedestrian hazards. Tragically, it has fallen prey to the push-button, requiring pedestrian actuation. Typically, this actuation must then wait for the appropriate phase in the signal's cycle, since the signal is designed to process cars efficiently, not pedestrians. Ultimately, push-buttons delay both motorists and pedestrians, while generally reducing pedestrian safety since the majority of pedestrians are unwilling to wait for their phase in the signal cycle. Most major urban downtowns now employ concurrent phasing at almost all intersections to process both cars and pedestrians more efficiently. Where turning vehicle conflicts have resulted in push-buttons in the past, the new approach is the leading pedestrian interval.
- **Leading Pedestrian Interval.** This simple strategy has had a transformative effect in many urban downtowns. The LPI is a short exclusive pedestrian interval (generally between 3 and 7 seconds in length) tacked on to the beginning of a concurrent pedestrian phase. During the LPI, waiting pedestrians can begin crossing an intersection with no vehicle movements. The effect is dramatic: turning conflicts are reduced, pedestrians clear crossings quicker to improve turn lane levels of service, pedestrian delays are reduced, and the priority of pedestrians at an intersection is raised dramatically as they become the dominant movement at the beginning of every cycle. The minimal time penalty for through traffic is returned by compressing the duration of turning vehicle delay.

All of these strategies have two significant effects: 1) pedestrian accommodation across busy streets is made significantly easier, reducing the barrier effect of roads such as State, High and Franklin; and 2) pedestrian compliance with signal indication increases dramatically, resulting in more predictable operations for motorists and less pedestrian-vehicle conflicts. When pedestrians can depend on a walk indication occurring at every signal in a timely fashion, simply waiting for it to occur becomes standard practice.

Citywide No Turn on Red (Recommendation 5.3)

Permitting right-hand turns during a red phase was not allowed until the 1970's. Ostensibly, this circulation policy was adopted to save gasoline during the fuel crisis, and documentation has demonstrated a positive effect. However, minor changes in fuel efficiency have had much more dramatic changes since the 1970's. Universal application of "Right on Red" policies have created conditions dangerous to crossing pedestrians, who encounter turning drivers who may be more focused on cars coming from their left than pedestrians in a crosswalk to their right. Many urban downtowns have returned to No Turn on Red citywide, often through general ordinances that do

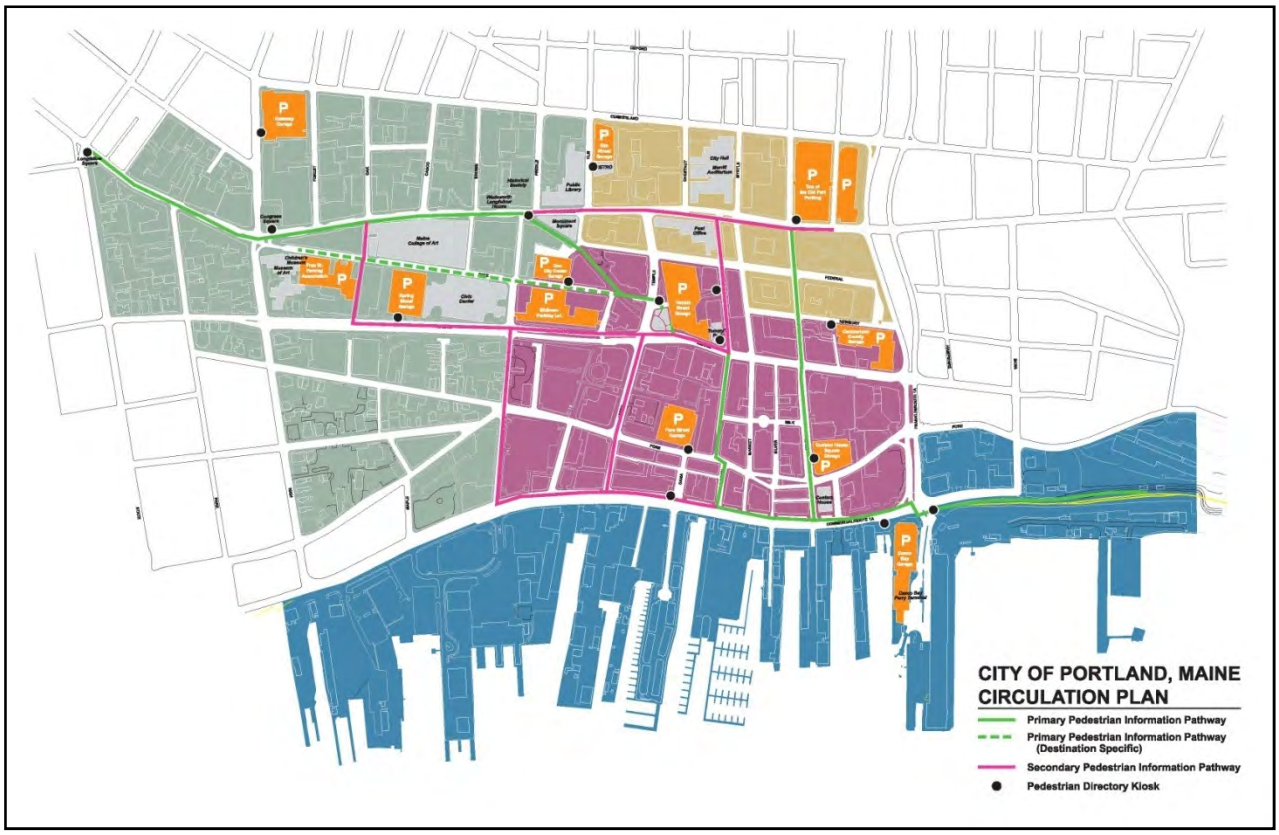
not require signing at every intersection. Portland can easily implement this policy and implement an outreach and signing program at far less cost than signing every intersection.

Wayfinding (Recommendation 5.4)

Clear, understandable and visually-catching wayfinding signs have an enormous ability to make walking on the peninsula a more attractive and stress-free experience for regular and occasional walkers. By providing clear directional, distance and average time en-route indications for key destinations, pedestrians can know what to expect on a given walking trip, greatly reducing anxiety and increasing the ability to time trips better. Coupled with map kiosks and signs, walking can be an effective way to travel for residents, visitors, and employees.

The City is already undertaking an extensive wayfinding program involving maps and kiosks placed throughout the Old Port and Congress Street commercial districts (see Figure 5-2). This program should be completed as soon as possible, then expanded to other areas throughout the peninsula, including the length of Congress Street, Deering Oaks and the ballpark, Bayside, the East and West Ends, and the sidewalks connecting to the Portland Transportation Center and the University of Southern Maine.

Figure 5-2 Planned City of Portland Wayfinding System



Source: City of Portland

Figure 5-3 Sample Wayfinding Map

Philadelphia, PA (Michael King)

International Standard Crosswalk Markings (Recommendation 5.5)

The use of international standard crossings, or "zebra" crosswalks, has been demonstrated to greatly improve pedestrian safety and provide drivers with a clear indication of where to expect crossing pedestrians. Crosswalks should be no less than 8-feet wide, with 10 and 12 feet preferred in areas with higher vehicle volumes. Many communities have discovered that 2-foot wide bars and gaps can conveniently be placed to avoid the predominant vehicle tire paths, greatly reducing maintenance costs. While parallel bars have been retained in many communities to make a "ladder" crosswalk, this is not recommended as the bars can be confused with stop bars and require additional maintenance.

Portland should adopt a crosswalk replacement and maintenance standard on the peninsula for international crosswalks. This will require a larger pavement marking budget to account for the additional marked square footage (often 3-4 times more material than parallel bars). One effective method for reducing markings budgets is to incorporate more expensive thermoplastic as opposed to paint. While the unit cost is significantly higher, thermoplastic can last five to ten years in harsh New England climates, as opposed to paint which often needs annual application. In the long term, the reduced labor cost negates the higher material cost – while providing a superior pedestrian facility.

Priority Pedestrian Improvements

The following pedestrian infrastructure improvements are recommended for immediate prioritization:

Congress & High (Recommendation 5.6)

The intersection of High, Congress and Free Streets represents a highly-visible and significant gateway for the city as well as a critical part of the Congress Street commercial district. Unfortunately, intersection operations can be very confusing for pedestrians and motorists, with northbound Congress Street traffic turning across the concurrent pedestrian path onto Free Street, where High Street traffic is also merging onto Free Street. The existing bollards (see Figure 5-4) are a pedestrian protection improvement, but greater accommodation is necessary in the form of raised curbs that clearly define vehicular and pedestrian space.

Figure 5-4 Pedestrian at Congress & High Street

Source: Nelson\Nygaard

This intersection (Congress Square) is a significant point of entry that lacks a clearly defined space, a welcoming pedestrian environment, or the necessary features to slow entering traffic. It serves to reinforce High Street as a barrier between the commercial core and the West End, forcing walking shoppers on Congress to traverse a potentially dangerous intersection with little clearly defined walking area. This serves to limit the desire of shoppers to continue to destinations across High Street.

As suggested in Figure 5-5, the Free Street intersection should be relocated to Congress Street, leaving High and Congress as a simple 4-approach intersection.

It is possible to achieve this improvement at very low cost with the use of paint and temporary devices, such as landscaping pots, benches, bollards and signposts (see example in Figure 5-6). As the City evaluates options at this critical location, this may be a good approach for testing solutions and cutting costs. However, permanent curbline and sidewalk changes should be installed as soon as possible.

Figure 5-5 Suggested Improvements at Congress & High

Source: Nelson\Nygaard

Figure 5-6 Temporary Plaza Installation in New York City

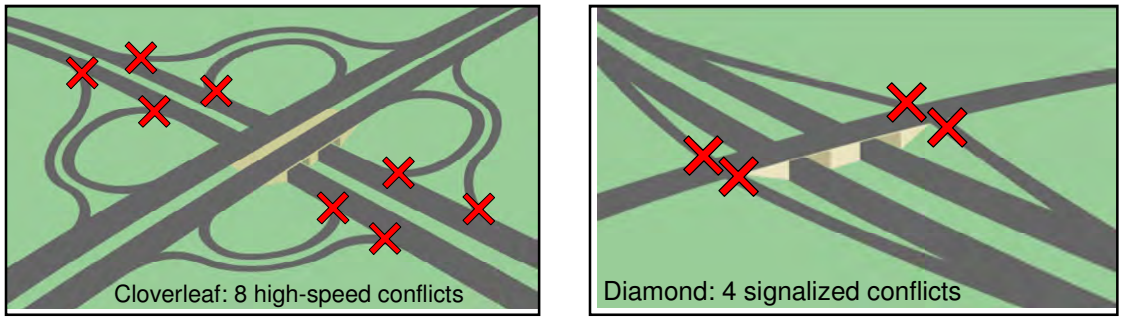
Source: New York Times, August 2007; courtesy Christian McNeill.

Forest at I-295 (Recommendation 5.7)

This intersection serves as a significant barrier to pedestrian and bicycle movements to and from the peninsula. While Forest Ave. west of I-295 serves many pedestrian-oriented activities, including small-scale retailers, Hannaford's and USM, its connection to the peninsula is severely compromised by the "clover-leaf" ramps of I-295, limiting access to peninsula residences, businesses and especially Deering Oaks. The multiple exit and on-ramp crossings necessary to travel under the imposing highway bridge present high-speed angle threats to pedestrians and bicyclists. If the City and region are serious about reducing the amount of vehicle trips entering and exiting the peninsula, this critical intersection must be addressed soon.

Many proposals for resolving these conflicts have been brought forward, including a complete closing of the highway interchange. According to participants in the public process, the most commonly referenced solution is the conversion to a standard diamond interchange. An exploration of this solution is recommended for improved pedestrian safety, due to the reduced number of vehicle conflicts - especially high-speed angle conflicts (see Figure 5-7), because exiting traffic must come to a stop instead of merging onto Forest Ave. Alternative diamond interchange designs, such as the single-point, double roundabout, and deviated diamond are not recommended due to potentially unsafe pedestrian crossing options.

Figure 5-7 Comparison of Pedestrian Conflicts at Interchanges



Recent studies by the Maine DOT have begun to evaluate options along the peninsula stretch of I-295, including this interchange. The City of Portland needs to take a more active advocacy role in MDOT's analyses on behalf of the City's goal to reduce vehicle congestion. Creating a safe and attractive pedestrian environment at this gateway should be the City's most important priority – from both the perspective of improving walkability as well as the perspective of reducing vehicle congestion.

It is worth noting that a diamond interchange takes up less land than the existing cloverleaf design, allowing the State to sell land for development. If carefully coordinated with City planning for Forest Avenue, the area near USM, Bayside and Marginal Way, the State could recover a large portion of the infrastructure cost associated with this improvement through land sales. In similar highway land sales around the country, state departments of transportation have entirely recovered the cost of demolition and reconstruction through land sales.

Install Crosswalk Markings on Larger Roads (Recommendation 5.8)

The City should plan the installation of international standard crosswalks as several key intersections where existing markings are insufficient or missing. Intersections along Franklin Arterial, Federal Street and Commercial Street in the vicinity of High and Park Streets were most

often identified at the public forum for this type of improvement. These and other critical intersections include:

- I-295 & Forest
- Forest & State
- Forest & Park
- Franklin & Congress
- Franklin & Cumberland
- Franklin & Commercial
- Franklin & Marginal
- Congress & High
- St Johns & Park
- St Johns & Congress
- Federal & Temple
- Temple Street & Free
- Vaughn Street & Brackett
- Deering & Brighton
- Washington at Tukey's Bridge off-ramp

Pedestrian Signal Improvements (Recommendation 5.9)

Crossing indications and timing should be improved at a number of locations, including Washington & Eastern Promenade, Washington & Foxx and Franklin & Somerset. Improvements were requested at the forum along Congress, Park and on Frederick at Fore River Parkway.

Short-Term Strategies

In recognition of the value of public input during the first public forum, the recommended short-term strategies directly reflect the responses that were recorded on paper and maps, as well as input from Committee members. The Committee recommends expanding upon the list of priority improvements above as soon as possible with the following short-term strategies, which build upon the recorded comments from the first public forum in Appendix C. This list would guide normal repair and improvement activities, annual capital budgets, and any grant requests related to streets and sidewalks for the next few City budget cycles, with a hope of completing most improvements within 5 years.

Other Safety Improvements (Recommendation 5.10)

The City should focus particularly on the following safety-related comments. Possible strategies also are listed.

- Improve other difficult crossings, including along the remainder of Forest and the entirety of Park, Federal, High, State, Fore River Parkway, and Franklin.
  - Possible strategies include international standard crosswalks, curb extensions, improved signal phasing/indication, and crossing islands.
- Improve poorly lit pedestrian areas by installing pedestrian-scale lighting, particularly along Forest Ave., Munjoy Street, Preble Street, and Congress Street near MMC.

Access Improvements (Recommendation 5.11)

Safety improvements should take top priority for future planning and reconstruction work. However, access improvements are also important for reconnecting Portland's historic grid and encouraging greater walking on the peninsula. The City should focus on the following comments from the forum and the Committee in the short-term:

- Connect the PTC to Congress along Sewall Street (improved sidewalks and signing). The lack of a clear connection today is incongruous with the non-vehicular nature of travelers using the PTC. Transit riders should not be forced to take a car to leave the PTC.
- Poor sidewalks need repair, including along North Street and the Eastern Promenade.
- The public staircase at Spring & Oak should be improved, and new lighting added to help improve access between the port and Congress Street.
- Additional pedestrian-only streets should be considered in Deering Oaks and the Old Port, especially as the City evaluates traffic circulation in Deering Oaks. On any street where the volume of pedestrians outnumbers the volume of motorists, this policy should be considered, unless on-street parking or loading is a significant generator of the pedestrian activity.

  A very successful alternative is the Woonerf. Essentially meaning "shared space" in Dutch, the concept originated in the Netherlands decades ago. Rather than remove vehicles from a street, a Woonerf has no curbs and attempts to make no clear distinction between spaces for cars and spaces for pedestrians, except where it is clearly advantageous to park a car or to place a bench or table (see Figure 5-8). Bollards or landscaping help suggest these spaces, but all are welcome to intermingle throughout the Woonerf space. The result is open access but a clear preference for careful yielding to pedestrians at all times.

- Several locations for reconnecting streets were identified, including across Franklin (at Federal, Oxford and Lancaster), Wilmot, Cotton, Cross, Free, South, Union, and Deering Street Place. Reconnecting these streets helps reestablish Portland's historic street grid and provide multiple means of convenient connection by all modes of transportation.
- More multi-use paths should be created, including the Bayside promenade trail. Planned connections in the Bayside redevelopment should carefully consider connections to the promenade trail, Deering Oaks and cross-peninsula corridors along Preble, Elm or possibly Franklin Arterial's median. A future connection should be considered along lower Commercial between Salem Street and Valley Street.
- Spring Street median should be removed with reverse-angle parking and bike lanes provided. The median acts as a barrier to many things, including pedestrian movement and shoppers' access to shops and businesses. Its wall impedes economic activity and creates a barrier that imposes on personal safety. Furthermore, median-divided roadways are clearly documented to carry higher speeds, further threatening pedestrians along Spring Street. With the inclusion of reverse angle parking, available supply can increase near the Civic Center, Commercial Street and the Old Port while helping to calm traffic and increase bicycle safety.

Figure 5-8 A Woonerf or Shared Street

Source: Hamilton 2000

Additional Strategies

Again, based on the input of the participants at the first public forum, the following additional strategies also are recommended for completion in future capital budgets, grant requests or private development plans. .

Additional Safety Improvements

Additional Safety Improvements (Recommendation 5.12)

- Traffic calm streets with speeds above 25 MPH (i.e. Park Avenue, Forest, State, and High). Speeds above 25 MPH are clearly demonstrated to result in greater pedestrian injury and fatality and should not be tolerated in a dense walking environment like the Portland peninsula.
- As suggested in the Foreward (pages F-7 & F-8), continue to consider conversion of two-lane one-way arterials to two-way streets (i.e. State and High Streets). Not only do these one-way streets operate at speeds above 25 MPH, they represent a uniquely dangerous "double-threat" to crossing pedestrians as a car that yields to a pedestrian can be passed by a following car which may hit the pedestrian that thought it was safe to cross. Standard two-way operations are significantly more predictable for all operators.

Additional Access Improvements

Additional Access Improvements (Recommendation 5.13)

- Add other new connections (i.e. crossing Franklin Arterial and I-295)
- Install missing sidewalks (i.e. along Franklin Arterial, Forest Ave., portions of Valley, lower Commercial)
- Expand narrow sidewalks (i.e. the Casco Bay Bridge)
- Provide connections to destinations with poor access (i.e. to the ballpark, Fore River Park)
- Add public staircases (i.e. Oak to Pleasant, Commercial to Danforth, Valley to Western Promenade)

Summary

All of the above immediate-term, short-term and additional walking strategies are summarized in Figure 5-9 below.

Figure 5-9 Recommended Walking Strategies

Existing Bicycle Network

Integrating bicycles is beneficial for mixed-use downtowns with transit access as bicycles can substantially extend travel options beyond the bus in a low-cost and low-impact manner. There are three fundamental components to including bicycles into a sustainable downtown transportation system:

- Connecting key destinations to the cycling network;
- Including safe and secure bicycle parking at key destinations and intermodal transfer points; and
- Ensuring that bicycles can be brought on board all forms of transit so that they may be used at both ends of a journey.

Primary destinations and intermodal connections – such as the Casco Bay Island Terminal – must be woven into the bicycle network, which may include on and off-street routes. All riders need to have a secure place to lock up their bike at their destination.

Currently, bicycle accommodation is generally lacking on the Portland peninsula. Traffic volume and speed makes shared facilities uncomfortable for most cyclists, and many street widths do not adequately accommodate both motorists and bicyclists. Bicycle parking is scarce, even in the downtown commercial district where some bicycle parking exists. Unfortunately, a minority of those spaces meet current acceptable design standards for bicycle parking.

Biking Strategies

While bicycle use in Portland today is generally low, a downtown of Portland's size and density should easily see a significant increase in bicycle activity as a result of improving accommodations. Every effort should be taken to safely accommodate bicycles on most roadways today. The following principles should guide bicycle accommodation in a mixed-use downtown like Portland's.

Bicycling Principles

Connecting Transit to Bikes

While METRO's buses have bicycle racks to improve access to and from the peninsula by bicycle, the bicyclist is often left stranded when disembarking. Dedicated bicycle facilities should exist throughout the peninsula and along most bus routes, connecting the peninsula to surrounding neighborhoods as well as providing connections within the peninsula's districts. Signing near key destinations should direct cyclists to bike parking, local points of interest and distant destinations, in much the same way that wayfinding is provided for pedestrians and drivers.

Maps and information kiosks are useful at disseminating information. Local transit maps should contain information about bicycle facilities, and local bicycle maps should show where the transit stops and lines are (see Figure 5-10). The goal is one map per journey, not one map per mode.

Figure 5-10 Bike & Transit Map

Chicago, IL Bike Map

Note: the map identifies preferred bike routes, transit services and transit stations that offer secure bike parking.

Bike Parking

The lack of a secure parking space keeps many people from using their bikes for basic transportation. Leaving a bicycle unattended, even momentarily, is not an option for most urban bicyclists. Finding a bike rack that doesn't work or isn't conveniently located can discourage future bike use. The design and placement of appropriate bicycle parking should be incorporated into planning throughout the peninsula. This can include special zoning requirements for the provision of bike storage for new developments, including locker and shower facilities at larger employers. Bike racks should be as close as possible to the front door of key destinations and businesses for security and convenience (see Figure 5-11).

Figure 5-11 Bike Parking at Transit

Washington, DC

Shared Use Lanes

Shared use lanes are an effective method for designating bicycle routes in urban downtowns like Portland's. The signing and chevron pavement markings are an easy retrofit that provide great value to bicyclists and motorists, especially where full bike lanes cannot be accommodated in the available right-of-way (see Figure 5-12).

The current American Association of State Highway Transportation Officials (AASHTO) Guide describes signed shared roadways (bike routes) as "those that have been identified by signing as preferred bike routes" and goes on to describe the reasons why routes might be so designated:

- Continuity between bicycle lanes, trails or other bicycle facilities
- Marking a common route for bicyclists through a high demand corridor
- Directing cyclists to low volume roads or those with a paved shoulder
- Directing cyclists to particular destinations (e.g. park, school or commercial district)

In addition, designation indicates that there are particular advantages to using the route rather than an alternative. Signed shared roadways generally do not succeed in diverting cyclists away from routes that are more direct, faster, and more convenient even though they may be on quieter streets. Indeed, the Oregon DOT bicycle manual graphically shows how such efforts can actually create greater danger and inconvenience for bicyclists by requiring them to cross major roads just to use a designated bicycle route. ODOT goes on to say:

> *"Directional signs are useful where it is recommended that bicyclists follow a routing that differs from the routing recommended for motorists. This may be for reasons of safety, convenience, or because bicyclists are banned from a section of roadway (the routing must have obvious advantages over other routes)."*

The AASHTO guide recommends considering a number of factors before signing a route:

- The route provides through and direct travel
- The route connects discontinuous segments of shared use paths or bike lanes
- Bicyclists are given greater priority on the signed route than on the alternate route

- Street parking has been removed or limited to provide more width
- A smooth surface has been provided
- Regular street sweeping and maintenance is assured
- Wider curb lanes are provided compare to parallel roads
- Shoulders are at least four feet wide

In all cases, shared use roadway signing should include information on distance, direction and destination, and should not end at a barrier such as a major intersection or narrow bridge.

Critical Bike Facility Dimensions

- 11 feet (3.3m): shared bike lane and parking area, no curb face
- 12 feet (3.6m): shared bike lane and parking area with a curb face

Figure 5-12 Shared Use Bike Markings

Source: Nelson\Nygaard

Bike Boulevards

An alternate shared use treatment that has become highly successful in the United States is the bicycle boulevard. The concept provides a preferred bicycle route without necessarily providing a dedicated facility or even a shared-use marking. Instead, a large pavement indication and extensive accompanying signing warns motorists that bicycles are encourages to share the entire street (see Figure 5-13). Often used along routes with cross-sections that vary frequently, this treatment allows planners to provide continuous bicycle routes where cross-sections would have prevented bike lanes or shared-use chevrons.

Bicycle boulevards provide a number of unique benefits:

- Clearly warning drivers of the presence of bicycles and importance of the roadway as a bicycle route

- Providing a bicycle route on roads with cross-sections that do not permit dedicated or shared-use facilities
- Encouraging bicyclists to take the travel lane to avoid being “squeezed” by following traffic

Bicycle boulevards should not be used as an alternative to higher quality facilities. However, their application on many of Portland’s narrower streets enables continuous bicycle routes to be created, especially through the downtown commercial district.

Figure 5-13 Bicycle Boulevard Signing and Markings

Bike Lanes

Bike lanes are a preferable method for safely defining bicycle routes, especially on streets with higher traffic volumes. The designation also has the advantage of reducing through vehicle speeds by better-defining the vehicle travel lane. Bike lanes are defined as "a portion of the roadway which has been designated by striping, signing and pavement marking for the preferential or exclusive use by bicyclists." Bicycle lanes make the movements of both motorists and bicyclists more predictable and – as with other bicycle facilities – there are advantages to all road users in striping them on the roadway. Bicycle-friendly cities such as Madison, Eugene, Davis, Gainesville, and Palo Alto have developed extensive bike lane networks since the 1970s and more recently large cities such as Tucson, Chicago, Houston, Philadelphia, New York and Seattle have begun to stripe bike lanes on their arterial and collector streets as a way of encouraging bicycle use. In general, bicycle lanes should always be:

- One-way, carrying bicyclists in the same direction as the adjacent travel lane
- On the right side of the roadway
- Located between the parking lane (if there is one) and the travel lane

Critical Bike Facility Dimensions

- 4 feet (1.2m): minimum width of bike lane on roadways with no curb and gutter
- 5 feet (1.5m): minimum width of bike lane when adjacent to parking, from the face of the curb or guardrail

Examples & Resources:

- Tucson, Arizona's "Bicycle Parking Development Standards" of 2003 is one of the most comprehensive sets of bicycle parking guidance available. It also includes ordinance language that can be adopted by communities like Portland.
- The City of Cambridge, Massachusetts, has recently developed a comprehensive set of bicycle parking standards, available at: http://www.cambridgema.gov/cdd/et/bike/index.html.
- CalTrain operates a highly successful bikes-on-board program. It is so popular that requests for more access are driving equipment purchase decisions. See http://www.caltrain.com/caltrain_bike_FAQs.html.

Recommended Bicycle Facility Improvements

The documented responses from participants at the first public forum provide an excellent list of needed bicycle network improvements, and the Committee recommends that all of these improvements be undertaken. However, a comprehensive assessment of each candidate improvement would be necessary to develop specific facility guidance, which is beyond the scope of this study. Nonetheless, the City should explore some key programmatic strategies in the immediate term while planning for more substantial improvements over the next 5 years.

Immediate-Term Strategies

The following strategies are intended to be begun as soon as possible, recognizing their minimal cost.

Peninsula-Wide Programs

Under the City's direction, the following suite of biking programs should be implemented.

Bike Rack Design Guidelines (Recommendation 5.14)

The City of Portland has begun to take a leadership role in bicycle planning for the peninsula by installing bicycle racks as part of public improvement projects and working with business owners to install "lollipop" post & ring sidewalk racks near commercial destinations. In recent years, higher security racks have been installed near public buildings (see Figure 5-14 below).

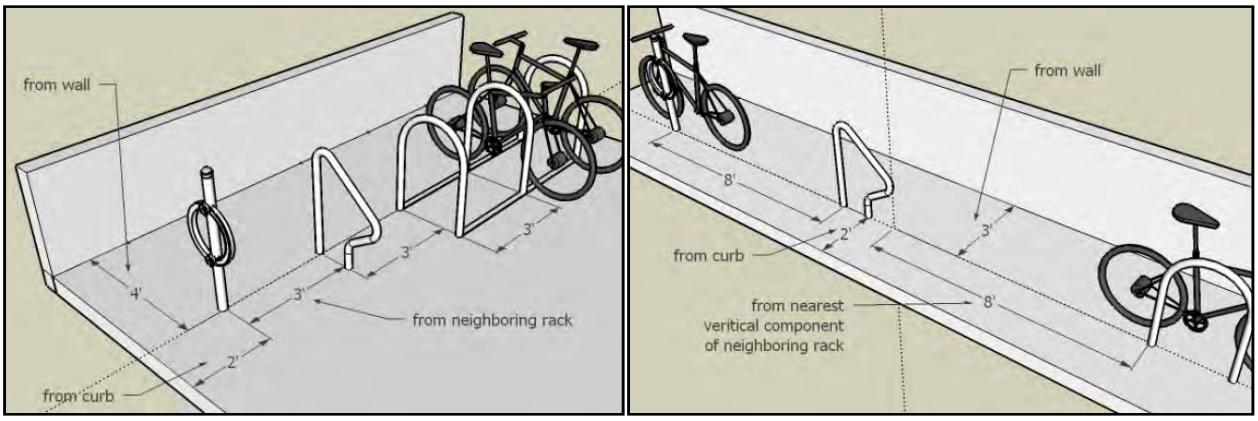
Figure 5-14 Examples of City of Portland Bike Racks

However, a wide variety of bicycle racks exist in Portland, and the majority are not compliant with the latest design guidance for parking bicycles (neither rack in Figure 5-14 is considered compliant with today's standards, and the locking rack is also considered a trip hazard). Essentially, a modern bike rack must be able to support a bicycle in two locations by the frame without necessitating pressure on its wheels. While this standard is easily reached through many bicycle rack manufacturers, traditional "radiator" style racks continue to be constructed and installed in Portland. These racks are rarely used in the manner they were intended as bicyclists attempt to minimize wheel damage (see Figure 5-15). Unfortunately, modern standards have been overlooked by new designs that appear aesthetically pleasing yet continue to ignore basic bike parking requirements.

Figure 5-15 Outmoded Bicycle Rack

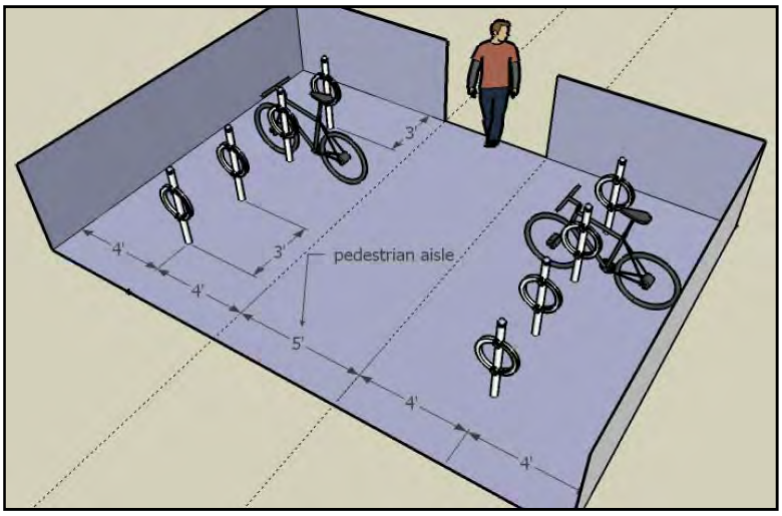
The City should take a leadership role in promoting the correct standards for bicycle parking on the peninsula by adopting a clear set of design guidance, not only in Public Works specifications, but also within zoning. Standards should address both short-term parking (sidewalk racks) and long-term parking (secure indoor bike rooms with easy at-grade access to building entrances). Several excellent examples from other communities exist that can be used to guide the development of Portland's guidance (see excerpts from the City of Cambridge's bicycle parking brochure in Figures 5-16 and 5-17).

Figure 5-16 Outdoor Bike Rack Placement Guidelines



Source: City of Cambridge

Figure 5-17 Indoor Bike Rack Placement Guidelines



Source: City of Cambridge

Bicycle Share Program (Recommendation 5.15)

The recent success of bicycle share programs in the U.S. and abroad has been dramatic. The first year of Paris' "Vélib" program has seen a 24% increase in cycling, helping the City work towards its goal of reducing vehicle traffic by 40%.[2] While this massive program far exceeds what Portland could accomplish, smaller domestic programs have been very successful, especially those at Humana in Louisville, Emory University, California State University – Fresno, and most recently at the University of California – Berkeley. Bike shares are proving to be an extremely cost-effective means of reducing vehicle trips in urban and suburban areas, and major domestics cities are now exploring them, including Boston, New York, Chicago and Washington – which has launched a pilot this summer. In fact, all of the major city programs and proposals are revenue neutral with a private operator covering all costs while receiving revenue from advertising panels.

[2] "A New Fashion Catches On in Paris: Cheap Bicycle Rentals," New York Times, July 13, 2008.

A smaller city such as Portland has the ability to start a very successful program for very low or no upfront cost. The City should approach major providers such as JC Decaux or Cemusa to investigate launching a bike share program. The City should also approach USM as university-based programs have been very effective and do not rely on advertising revenues.

Priority Biking Improvements

Bike Lanes (Recommendation 5.16)

As discussed at the second public forum, the City of Portland intends to install a bicycle facility on Deering Avenue as a parallel bicycle facility to the more congested Forest Avenue. This initiative should go forward, and similar efforts should be taken in coming years. However, we encourage the City to carefully assess whether the bicycle facility can be continued towards downtown along Cumberland or Park Avenues to provide a continuous connection. Furthermore, the City should not abandon efforts to install a bicycle facility on Forest Avenue. Higher volume urban roadways are generally the places that require bicycle facilities the most. Deering Avenue's facility should not be considered a solution for bicycle demand along Forest Avenue, especially given the presence of students at USM.

Bike lanes should also be considered on key arterials currently used by cyclists, including Preble, Elm, Commercial, and Congress. These have been incorporated into the transit strategy renderings in Chapter 6.

Bike Boulevards (Recommendation 5.17)

Designating, signing and marking bike boulevards can be accomplished rather inexpensively. The boulevards are a great cost-saving tool that significantly raises the visibility of bicyclists to motorists. Key locations where other facilities cannot be accommodated include Free, Exchange and Market Streets in downtown, as well as a number of residential streets in the East and West ends. Recommendations from the forum include Surrenden Street, Fore Street, Cutter Street, Brackett Street, Mellen Street, and Walnut Street.

Short-Term Strategies

New Bicycle Facilities (Recommendation 5.18)

Bicycle accommodations on the peninsula are basically nonexistent today. Comments from the first public forum demonstrated a wide variety of desired locations for bicycle facilities. Without more detailed analysis, it will be difficult to determine which locations are most feasible. However, the Committee believes that the City should endeavor to assess the cross-sections of every street that participants noted "add bike lanes" or "add separate bike path." As many continuous bicycle facilities should be installed on the peninsula as possible to safely accommodate existing bikers as well as to attract new riders. Specific locations identified during the public forum include:

- Franklin Arterial
- Congress Street
- Brighton Avenue
- Commercial Street
- Washington Avenue
- Danforth Street
- St. John Street
- Valley Street

Bike Stations (Recommendation 5.19)

Bike stations have become successful magnets for bicycle activity, providing rental, repair, advocacy, storage, training and other functions to bicyclists of all ranges of experience. Their presence in urban areas has helped attract new bicyclists and elevate the importance of the mode to other travelers. The City can take a cost-effective approach by installing basic bicyclist comfort stations proximate to an existing bike shop or retail amenity. These could include covered secure bike parking. Locations recommended at the public forum include Cumberland Avenue between Mayo and Smith Streets, Congress Street at Myrtle Street, Spring Street at Temple Street, and Congress Street at Gilman Street (at the hospital). Other obvious locations include the Casco Bay Islands Terminal and USM.

Summary

The importance of installing much-needed bicycle facilities, coupled with their relatively low cost, suggests that all of the needs identified in the first public forum should be addressed in the immediate- or short-term. Therefore, no long-term strategies have been recommended. All immediate-term and short-term strategies are depicted in Figure 5-18.

Figure 5-18 Recommended Biking Strategies

Chapter 6. Transit Strategies

In coordination with the Peninsula Transit Committee, Nelson\Nygaard helped develop a number of strategies for improving the attractiveness and utilization of transit in Portland. The methodology draws heavily upon what was heard at the first public forum. The goal was to develop a series of short, medium and long term strategies that can be implemented successfully given geographic, political and financial constraints.

Methodology

The development of effective transit operating strategies for the peninsula draws first from the number of concerns heard at the first public forum as well as from the Committee, local governments and peninsula transit agencies. The input of users of the transit system (as well as those who chose not to use it) is invaluable. Actual user perceptions of service quality and effectiveness illuminate the improvements that are necessary to attract more riders. These perceptions also reveal a number of different priorities depending on the user: many types of users have the same goal, while many have competing interests.

Highlight Competing Priorities

The strategies developed by the Committee and the consulting team attempt to address several complementary as well as competing priorities revealed at the first public forum, including:

- Serving existing critical destinations with door to door service (METRO's circuitous Route 8 attempts to provide this service)
- Serving existing neighborhoods with more frequent service, especially in response to increased interest in alternative modes
- Serving future development areas that do not currently have service in an attempt to establish transit ridership from the start
- Providing a higher-level of frequency and lower travel times to compete directly with drive-alone commuting
- Reducing the number of transfers that must be made with better through connections

All of these priorities cannot be fully achieved at the same time without significant investment in transit funding. Part of the Committee's goal has been to recognize the financial realities that transit providers and the City are facing, especially as budgets tighten in a flattening economy with spiking fuel prices. In the short-term, this means that Portland and its transit providers will have to make certain trade-offs to achieve all or part of these priorities. The trade-offs to weigh are likely to include the following:

- Serving key front-door destinations from alternate locations (i.e. serving Maine Medical Center from Congress Street, serving Kennedy Park from Washington Avenue, serving Hannaford's from Preble Street Extension)
- Diverting faster through-route service to serve key front-door destinations (i.e. re-routing Forest Avenue service to serve USM or Hannaford's, re-routing Congress Street service to serve Franklin Tower)
- Pulling routes from existing service areas to increase performance on parallel corridors (i.e. moving Park Avenue service to Congress Street, moving North Street service to Washington Avenue or Congress Street, and serving Bayside from Preble Street

- Eliminating the 30-minute "pulse" at METRO's hub to be able to increase service frequency
- Relocating METRO's Downtown Transportation Center to Monument Square to enable routes to travel through the Monument Square area as opposed to turning them around at the Pulse

The assessment of transit service changes also takes into careful consideration existing residential and employment densities, as depicted in Figures 2-2 and 2-3. However, providing quality transit service to where people live and work does not necessarily guarantee increased ridership, depending on a variety of factors, including existing alternatives, income profiles, origin and destination patterns, and neighborhood perceptions. Mode shift to transit will therefore not be directly correlated to residential or employment patterns.

Phased Implementation

The methodology for developing transit strategies has recognized the need to prepare a set of operating recommendations that can be implemented almost immediately. However, the Committee has also sought to look towards the future and provide a series of implementable stages for transit service that will build-off of the immediate-term recommendations as additional funding becomes available or necessary. Therefore, the transit operating strategies are organized in three time periods:

- The immediate-term fully fiscally-constrained future, which assumes that any proposed changes must occur without any new operating or expansion capital. However, these strategies may be implemented as soon as possible.
- A short-term future (approximately 5 years) that attempts to provide idealized transit service that builds off of short-term strategies, is sized to the region's population, but requires a certain level of additional public or private financing to achieve.
- A long-term future (10 or more years) that presents realistic and implementable solutions for Portland that can be achieved with a moderate investment and a unified commitment by government, agencies and the community. These strategies are intended to be a seamless evolution of the medium-term strategy recommendations.

Geographic Context

Transit service has varying user needs to serve, often with the same bus. These needs can be best expressed according to their varying geographic contexts. This is demonstrated in Figure 6-1 below, which incorporates various user needs as identified during the forum and in coordination with the Committee, organized by their geographic context. Key considerations are indicated.

Figure 6-1 Geographic Context of Peninsula Transit Needs

Transit Need	Key Considerations
LOCAL PENINSULA Provide comprehensive transit access to Bayside and the Eastern Waterfront, in addition to Congress Street / Monument Square Give peninsula residents convenient access to Hannaford Serve Maine Medical Center and West End Improve access to Congress Street buses Improve service to East Bayside and Kennedy Park Overcome I-295 barrier to pedestrians and cyclists by linking USM with Bayside and Monument Square	Service to Bayside & the Eastern Waterfront will be underutilized until more build-out is achieved Sacrificing front-door service for higher-frequency service Through-routing to connect Eastern Waterfront requires changes to ends of routes
NEAR-BY PARK AND RIDE Serve parking lots on or adjacent to the peninsula	Coordination with private shuttles & TDM plans
COMMUTER SERVICE South, North, and West Provide express bus routes to outlying park and ride locations (i.e. ZOOM, Tri-Town, etc.)	Coordination with Maine DOT to expand parking

Transit Planning Framework

Each of these considerations affects the preliminary strategies identified in the following matrix of immediate, short and long term horizons.

Figure 6-2 Immediate, Short and Long-Range Strategy Framework

	Immediate, No/Low Cost	Short Term / Cost	Long Term / Cost
Local Peninsula	Revise existing routes to serve locations now served by circuitous Route 8. Adjust schedules to operate with consistent 10, 15, 20, 30 and 60-minute headways. Provide consistent 10 to 20-minute headways on key peninsula route segments by overlapping routes and staggering departures. Extend existing routes to add more service to the waterfront from Monument Square. Adjust existing routes to channel more service through Bayside Provide direct link from Portland Transportation Center to USM / Hannaford / downtown / waterfront.	Replace Route 8 with routes that link: ○ USM / Hannaford / Bayside / Monument Square, with Ocean Gateway ○ MMC and West End with Monument Square, Bayside, and/or waterfront ○ Kennedy Park and Franklin Tower with DHS, Hannaford, and downtown transit hubs. Revise existing routes to serve the Portland Transportation Center and the new Mercy Hospital site, without diverting Maine Mall buses. Use signal prioritization and other techniques to help move buses through congested areas.	Bus Rapid Transit or Diesel Light Rail, with shorter bus links to destinations not on the dedicated bus or rail route. Include cross-peninsula configuration, to ensure direct access to Ocean Gateway, Congress Street, and Bayside. Develop pedestrian-friendly bus/rail transfer facilities in Bayside, near to Ocean Gateway, and elsewhere Ensure that short and medium-term decisions are consistent with a long-term vision that provides a meaningful alternative to the current reliance on automobiles
Park & Ride	Work with Maine Medical Center to improve peripheral parking arrangements	Possible MDOT/hospital partnership to develop and share a parking structure at the Portland Transportation Terminal Identify other adjacent lots and shuttle opportunities	Develop appropriate levels of parking at rail / bus terminals
Commuter	Identify additional park & ride facilities and expand express service from Deering Junction (Morrill's Corner), Northgate and Westgate	Expand existing park and ride lots Develop new ZOOM service: Brunswick-Freeport-Yarmouth, Lewiston-Auburn, and Gorham and points west	Develop improved dedicated park and ride lots Increase commute hour frequencies Provide all-day service for a variety of travel purposes

Preliminary Strategies

This planning framework was utilized to help prepare two initial bus transit strategies during brainstorming sessions with Nelson\Nygaard, METRO, South Portland Bus, and City planners. These strategies also reflected an understanding of the existing route system, existing schedules, needed recovery times, roadway circulation limitations, approximate running times, predominant origins and destinations, and local residential and employment densities. These options were presented to the Peninsula Transit Committee to solicit feedback while demonstrating different possible approaches to bus routing. Full descriptions of each option can be found in Appendix D. While, final routing and operating details will be determined by the respective transit providers, this exercise served as a valuable guide for the Committee to evaluate the complexity of transit changes. Ultimately, this led to the development of the comprehensive transit recommendations below.

Recommended Transit System Improvements

Portland stands at a critical juncture in its historic growth. The recent decade has seen dramatic regional population and employment growth with very limited growth on the peninsula itself. Nonetheless, the urban walkable character of the peninsula has attracted growing attention with many large development proposals and some initial construction. Unfortunately, the vast majority of regional growth has occurred beyond METRO's fixed-route transit network, resulting in a heavy reliance on personal vehicles. This has caused significant roadway volume increases, accompanied by increased congestion and crash rates. Many trips are directed to the peninsula for services, employment or entertainment, resulting in increased traffic on the peninsula, even though little population or employment growth has occurred on the peninsula itself. In essence, the peninsula is being impacted by forces outside of its boundaries.

The 2002 Peninsula Traffic Study brought this reality to light very clearly. In a modeling exercise informed by historic roadway volume growth, that consulting team was able to demonstrate that continuing down the path of regional auto-oriented growth would necessitate many roadway expansions to avoid gridlock, dramatically changing the peninsula's built form and walkable character.

Peninsula residents and the City reacted strongly to the vision of significantly larger roads and intersections cutting across residential neighborhoods and acting as barriers to movement on the peninsula, especially by modes other than the automobile. The consulting team at that time also recommended an alternate future for Portland that focused on significant changes to walking, biking and transit modes. One of the key recommendations of that study was to conduct this currently planning effort.

The Committee respects the need to make changes in how residents of the greater Portland region access and travel on the peninsula. Otherwise, sustained auto dominance will literally pave over many of the features that make Portland a great American city. More importantly, the higher cost of auto-oriented transportation is unsustainable, especially when significantly cheaper alternatives exist. As will be demonstrated in Chapter 7, a significant amount of public and private resources are dedicated to vehicular facilities on the peninsula, impacting land values, taxes, and the ability to provide services cost-effectively. In urban markets with greater population and employment densities, transit service is a highly cost-effective means to move people while retaining jobs and housing affordability in downtowns.

Immediate Term Transit Strategies

The following strategies are intended to be able to be implemented as soon as possible with little or no financial commitment.

Develop a Regional Transit Management Strategy

Develop a Regional Transit Management Strategy (Recommendation 6.1)

While Portland has seen the development of an effective transit system over the years with the assistance of Federal and local funding, the Portland region stands at a critical point in the evolution of transit services. According to the U.S. Census, greater Portland is designated as an "urbanized area" with a population less than 200,000. This designation limits the amount of Federal Transit Administration funding under "Section 5307" as well as limits how the funds can be used. While the PACTS Transit Committee has managed and distributed FTA funds appropriately for many years, regional growth has pushed greater Portland's population almost to or slightly above 200,000, depending on how regional boundaries are drawn. If this change is formalized, greater Portland can be designated as a "Transportation Management Area" (TMA)[1], which would change how FTA funding can be spent but potentially increasing the total amount significantly. However, this change requires a different structure for regional collaboration. Recognizing the great need to improve transit funding and services in the region, it is recommended that PACTS and all of greater Portland's transit providers begin discussions immediately to plan for designation as a TMA.

TMA Eligibility

The Section 5307 grant program of the Federal Transit Administration (FTA) makes federal resources available to urbanized areas for transit capital and operating assistance. To date, the FTA has considered Portland an "urbanized area" for the purposes of this grant. This category includes cities with populations between 50,000 and 199,999. For urbanized areas, funds are typically apportioned to the Governor for distribution. Funding is apportioned based on population and population density. The Governor's office of the State of Maine has designated the Maine DOT as the funding administrator. The DOT allocates the funds to Maine's cities by formula, with Portland's Metropolitan Planning Organization (MPO) – which is PACTS – receiving the funds for the Portland region. PACTS Transit Committee has another formula for distributing this allocation to the three direct transit recipients: METRO, CBITD, and NNEPRA (Northern New England Passenger Rail Association, which operates Amtrak). Eligible purposes for these funds include:

- Planning, engineering design and evaluation of transit projects and other technical transportation-related studies
- Capital investments in bus and bus-related activities such as replacement, overhaul and rebuilding of buses; crime prevention and security equipment; and construction of maintenance and passenger facilities
- Capital investments in new and existing fixed guideway systems including rolling stock, overhaul and rebuilding of vehicles, track, signals, communications, and computer hardware and software

[1] The FTA's term "Transportation Management Area" is not to be confused with a Transportation Management Association, which is a long-standing term for a non-profit association dedicated to promoting methods to reduce vehicle trips and congestion. Transportation Management Associations will be described in Chapter 7.

With funding determined by a formula of the PACTS Transit Committee, METRO is not in direct control of its capital and planning funds, even though it is the largest transit provider in the state by an order of magnitude.

Because Portland's population is on the verge of surpassing 200,000, it will transition from the "urbanized area" classification to a Transportation Management Area (TMA). Most federal Section 5307 funding is allocated to these larger cities; in FY 2003, 91% of available 5307 funds were apportioned to TMAs in the United States.[2]

This change has several implications for Portland. First, the responsibility for applying for, receiving and apportioning funds may shift. In TMAs, a designated funding recipient must be identified in cooperation with the Governor, responsible local officials, and publicly owned operators of transit services. Funds flow directly to this designated recipient, who then apportions the funds and prepares the final program of projects for the amounts available. In almost all TMAs, the designated recipient is the largest transit agency, not the DOT or MPO.

Regardless of the final structure, PACTS would continue to be part of the decision-making process as the FTA requires that the designated recipient works cooperatively with the MPO to agree on how 5307 funds will be spent. This process functions as follows: the MPO develops and adopts the transportation improvement program (TIP), which must include every capital and operating project for which assistance will be requested from the FTA by local transit providers, including METRO. Meanwhile, the designated recipient develops the program of 5307 projects for inclusion in the TIP.

Greater Flexibility

If one or more transit providers act as the direct recipient of a much larger pool of FTA funds, Portland has a significantly greater ability to operate transit services more efficiently and robustly. While operating assistance is no longer an eligible expense, a portion of TMA funding must be used for transit enhancement activities such as historic preservation, landscaping, public art, pedestrian and bicycle access and enhanced access for persons with disabilities. This would also benefit many of the other recommendations in this study.

The City of Portland and its transit providers should begin working with the Federal Highway Administration (FHWA), FTA, State and PACTS to determine if the urbanized area boundary can be adjusted so that greater Portland becomes a Transportation Management Area. Working cooperatively, these parties can enable a significant improvement in the region's ability to improve transit services.

Improved Transit Information & Visibility

When riders around the U.S. are asked why they don't use transit more or for other trip purposes, one of the top reasons is their lack of knowledge about the system. This was true of participants at the first public forum. Even most existing riders are familiar with their regular routes but entirely unsure how to get anywhere else by transit. For potential riders, the lack of guidance at or near bus stops is a large detriment to their participation.

Marketing all transit resources in Portland as a single system to show the richness of the transit network in and through Portland is an inexpensive yet important first step. Among the best visibility strategies include:

[2] Source: http://www.fta.dot.gov/funding/grants/grants_financing_3561.html

Transit Information Panels (Recommendation 6.1)

- **Transit Information Panels.** Providing route and schedule information at most bus stops breaks down the information gap to allow new riders to be attracted to bus service. A variety of suitable products exist for displaying transit maps and schedules, depending on the type of stop and the available space to mount the information. Panels should also be mounted in hotels and common visitor destinations that can be accessed by transit (see Figure 6-3). METRO and South Portland Bus should partner with GPCOG and the City of Portland to initiate an information program as soon as possible.

Figure 6-3 METRO Map Panel at a Hotel

Source: Nelson\Nygaard

Customized Route & Stop Information (Recommendation 6.2)

- **Customized Route & Stop Information.** System maps and full route schedules can often be confusing and time-consuming for new or infrequent riders. Trying to figure out when a bus comes can be difficult, and determining where it is going is often most easily done by asking a driver after committing to boarding. Developing customized information for key system stops can be very valuable for attracting riders, especially those who would consider the bus but are too confused about how it operates. Key targets are Congress Street services (all Metro routes and two South Portland routes), that provide easy cross-town connections but are represented by several route numbers.

Consolidated System Map (Recommendation 6.3)

- **Consolidated System Map.** METRO is not Portland's only transit provider. Portland is well-served by a robust system of independent providers who mostly work in support of one another. It is the responsibility of government planners interested in increasing system utilization to develop a consolidated system map of all services, including METRO, South Portland Bus, Casco Bay Lines, ZOOM/Turnpike Express, ShuttleBus, Greyhound, Concord Trailways, Amtrak, etc.

Centralized Transit Website (Recommendation 6.4)

- **Centralized Transit Website.** Portland's transit services each have good websites with route, schedule and fare information, but web-connectivity between services is minimal or nonexistent. A centralized website with the consolidated system map should be developed to allow simple one-stop access to all of Portland's transit assets. Ideally, this site also would include walking, biking and TDM information as described in Chapter 7.

Transit System Promotion (Recommendation 6.5)

- **Transit System Promotion.** Many travelers to Portland would never know that they could have arrived on a comfortable train or inter-city bus. They may not realize that their accommodations are a short bus ride from shopping, dining and recreational activities. They may not even realize that a bus runs between their home and work for a fraction of the cost of their gas and parking. And few Portland residents even realize how comfortable METRO's new equipment is to ride. Promoting the strength of Portland's transit system is an essential part of getting people to use it. The City should actively partner with transit providers as well as the Chamber of Commerce to put transit information in the hands of businesses, travel agencies, hotels, etc. Marketing materials should be developed to essentially "sell" the bus. Promoting transit should not be left to studies and community processes alone.

Improved Transit Amenities

Improved Transit Amenities (Recommendation 6.6)

Any effort to improve the accessibility to and attractiveness of bus stops greatly improves the experience of waiting for the next bus. By simply prioritizing bus stops in current maintenance programs, the City can greatly enhance the amenity of transit. Suggested efforts include:

- Installing standard international crosswalks at bus stops
- Painting bus box markings where buses stop in a shoulder lane
- Locating at least one bike rack at every stop
- Locating Portland's proposed wayfinding signs at bus stops
- Ensuring all bus stops are connected to destinations by safe sidewalks or walkways

Providing Community Transit Services

Providing Community Transit Services (Recommendation 6.7)

The Portland peninsula is served by two distinctly different transit services. Greater Portland METRO operates seventeen 20- and 40-passenger buses on eight fixed routes with published timetables. The Regional Transportation Program, Inc. (RTP) runs door-to-door with thirty-six smaller vehicles serving the medically needy, frail elderly, cognitively challenged and others who are qualified under the Americans with Disability Act,(ADA), as required by law.

Each provider operates on behalf of different geographic districts that overlap the peninsula. METRO operates as a municipal transit agency that serves Portland and Westbrook. RTP operates as the Maine Department of Transportation's Region 6 Passenger Transportation, serving all of Cumberland County. Both providers (as well as South Portland Bus) provide high quality lift-equipped transit services to mobility-impaired riders of Portland and surrounding communities. However, these services are not well-coordinated on the Portland peninsula,

resulting in large inefficiencies and inequities that compromise Portland's ability to improve transit for all potential users.

History of Paratransit in Portland

Nearly two decades before the Americans with Disabilities Act (ADA) of 1990, there were several organizations in Portland that provided door-to-door transportation on behalf of the mobility-impaired. Those organizations were the Cumberland York Senior Services (now Southern Maine Area Agency on the Aging), the American Red Cross, and METRO. In order to improve efficiency and coordination, these organizations worked with Maine DOT to combine their door-to-door services into one regional service. While METRO sought to operate all door-to-door services, a court settlement required that a third-party entity operate these services, and RTP was established in 1976 as a non-profit organization to exclusively provide door-to-door services to Portland and greater Cumberland County. RTP continues to operate door-to-door services with its lift-equipped buses. RTP also administers a team of volunteers and provides other transportation services under agreement with the Maine Department of Health and Human Services.

Paratransit is a form of door-to-door demand-responsive transit service that was required by the ADA in 1990. The ADA requires that transit agencies receiving FTA funds also provide door-to-door services to those "functionally unable" to ride a fixed-route service that is located within ¾ mile of their home or destination. Violation of the ADA could result in the loss of METRO or South Portland Bus's fixed-route FTA funding. Since RTP was already operating successfully as the negotiated regional door-to-door service provider, in 1993 it became the designated provider of paratransit service under the name "ADA Paratransit Service" (the ADAPT program).

RTP is a private non-profit organization with an independent Board of Directors. The Board of RTP is not associated with METRO, and METRO has no influence on the Board. While many transit systems in the United States contract with private operators for their required paratransit services, Nelson\Nygaard has not found another system that is not under the administrative authority of the State, the regional fixed-route transit provider or a municipality. Nevertheless, because local municipalities contract directly with RTP for ADA services, they currently meet all ADA requirements. The arrangement, while uncommon, has been noted as acceptable by Federal Audits over the years.

Portland's arrangement is highly problematic for METRO. The ADA requires transit agencies like METRO to provide a minimum level of service to mobility-impaired populations on its fixed and door-to-door services, however METRO does not operate its paratransit service. RTP has managed to efficiently provide this required paratransit service as part of its broader door-to-door services (which include Medicare and other hospital service, special educational service, and elderly service) by co-mingling financial support for other services with its ADA payments from local municipalities. RTP provides door-to-door service throughout the peninsula and beyond, extending far beyond the ADA's requirement of service only within ¾ mile of METRO routes. However, METRO remains entirely accountable to the FTA for paratransit performance, but RTP is accountable to local communities, not METRO. While RTP's customer surveys indicate a 98% overall satisfaction in key performance areas, METRO cannot corroborate this information nor influence the quality of service.

Paratransit Inconsistencies Today

The separation of METRO and RTP administration has resulted in service inconsistencies on the peninsula. Outside of METRO's service area, RTP's ADAPT service is an essential component of regional mobility. Within METRO's service area, ADAPT offers service, but METRO buses also are equipped to serve mobility-impaired riders. Several hundred Portland residents rely on RTP's lift-equipped vehicles for door-to-door medical, shopping and other trips. However, on the peninsula, METRO buses serve a very high percentage of the mobility-impaired population, particularly on Route 8.

Rider demand has driven the evolution of Route 8 for several decades. As residential high-rise buildings were developed, planners often stipulated that METRO or South Portland Bus provide near-by or front-door stops to these high-density locations. These include Franklin Towers, Harbor Terrace, and 100 State Street. Over time, the desire to meet the transit needs of these developments resulted in the circuitous Route 8, which essentially functions as a "community bus" service with low appeal to riders seeking more direct connections between peninsula destinations. While it connects local residents with shopping destinations, medical services, and commercial areas for personal errands, trips are one-way and require a lengthy outbound or return ride for a single round-trip. This has low appeal as an alternative to driving except to those who cannot drive, bike or walk. However, its effectiveness at serving the peninsula's mobility-impaired population was recently demonstrated as METRO held public hearings to reconfigure the service. The public overwhelmingly requested that the service be preserved. [3]

Unfortunately, significant discontent with RTP services was also voiced during these hearings when METRO officials explored changes to Route 8 that might require greater use of RTP service. Residents rejected the proposal stating that RTP requires advanced scheduling and sometimes long waits for RTP rides. They indicated that RTP – which is a demand-responsive service – does not compare to the METRO's fixed-route service, which operates in a very different fashion. METRO service is has a set route which is predictable and requires no advanced scheduling. Residents further suggested that they were pleased with the Route 8 service and wanted it retained.

The preference to ride Route 8 is exacerbated by the cost of the service. One-way rides cost $2.50, versus only $1.25 for METRO fares. Furthermore, Medicare transit benefits allow recipients to have low-cost monthly passes that can be used on fixed-route buses, further increasing the attractiveness of riding METRO.

RTP stipulates that duplication of services should not be an issue, because RTP maintains complete and accurate ADA applications as required by ADA laws. RTP notes that while the Route 8 bus service is functional for many disabled citizens, these particular riders likely did not qualify under ADA laws for ADA door-to-door service. The law states that those who are able to ride the fixed route bus, should under no circumstances be riding ADAPT. In fact, RTP issues the MaineCare bus pass, which enables eligible riders to ride METRO, South Portland Bus Service, and the ShuttleBus all month long at no charge, with RTP paying the fixed route services for their associated cost. MaineCare funds support hundreds of riders on the Route 8 bus.

It is important to note that the stated goal of the ADA is to encourage greater utilization of fixed-route transit by the mobility-impaired community. It is more equitable to be able to accommodate all types of riders on a single transit bus. Unfortunately, the Route 8 has become so tailored to the

[3] Source: Meeting notes of William Needelman, City of Portland, from METRO public hearings on July _, _ and _ 2008.

needs of the mobility-impaired community that it no longer serves a valuable function for other large segments of the transit riding population, especially for those who have access to a car or can bike or walk to their destinations faster than the Route 8. The ADA's creation of paratransit was intended to provide transit service in routes parallel to fixed-route service for those who could not walk to the fixed-route stop, while fixed-routes were intended to remain as alternatives to the automobile for all riders, including the mobility-impaired. Unfortunately, on the peninsula, this balance has been lost with the Route 8's current operation.

Relationship of Paratransit to Overall System Improvements

As the City of Portland seeks to improve transit service for all potential users, it should consider the opportunity to better match the services of RTP and METRO to the type of transit needs that have evolved on the Portland peninsula. METRO has evolved into a high-quality fixed-route provider with some of the latest vehicle technologies and the ability to serve many more riders than today, especially if some of the route changes suggested in this Chapter are implemented. However, its Route 8 service does not fit into this role at all. Meanwhile, RTP has evolved to be a superior provider of door-to-door and paratransit service with the ability to serve a greater percentage of the peninsula's mobility-impaired population. However, METRO's Route 8 performs the role of peninsula circulation for a large percentage of the mobility-impaired community. Therefore, it is recommended that the City coordinate with METRO and RTP to re-evaluate how community transit services are provided on the peninsula.

Coordination of RTP and METRO Services on the Portland Peninsula

METRO's Route 8 demonstrates the value of a strong "community bus" service that has been developed over many years. Not unlike other well established fixed-routes in cities throughout the county, the Route 8 evolved over decades and in direct response to community planners and city officials when high rise apartments and other developments were built. However, true "community bus" services can often be operated at significantly lower cost than traditional fixed-route services by using smaller transit vehicles. These vehicles have lower overhead and maintenance costs.

Strong community bus services provide a hybrid of daily fixed and variable route service (also known as "deviated" fixed-route service) by maintaining a regular circulation schedule to key stops and then adding on-call deviations to other front-door stops when needy riders directly contact the bus driver. If smaller and more flexible equipment can be utilized, existing Route 8 fixed-route assets could be freed up to improve service levels on other routes. If well-coordinated, all current riders of the Route 8 could experience a higher quality of transit service than they receive today from both a dedicated community bus as well as more regular service on improved METRO routes. The City should initiate discussions with RTP and METRO to carefully explore creating a formal community bus service.

METRO and South Portland Bus Route Changes

METRO and South Portland Bus Route Changes (Recommendation 6.8)

As a result of the evaluation of the preliminary transit strategies, the Committee has developed the following sequence of immediate transit system changes that would greatly improve existing service without additional cost. It should be noted that each of these recommendations is subject to the concurrence and ability of METRO or South Portland Bus to make adjustments to their established routes. Most of these recommended changes would affect service along entire routes, including where they operate off of the peninsula. While some likely modifications to off-peninsula ends of some routes can allow these recommendations to proceed, that is not the case

for all routes. Each recommendation will require careful consideration by METRO and South Portland Bus to achieve the best balance for all riders.

- Revise existing Route 8 to directly link the Eastern Waterfront, Monument Square, Bayside, USM and the PTC.
- Relocate the primary downtown bus stop from the Downtown Transportation Center (the "pulse") to Monument Square – ideally between Preble and Elm Streets. This location will continue to serve all services while creating a far more prominent location for transit service. It will also eliminate the walking distance for intermodal transfers between Routes 1 and 8 and other METRO routes, while putting South Portland Bus services at the same stop. This recommendation can only be accomplished with the following bullet.
- Adjust all METRO route schedules to operate with consistent 10, 15, 20, 30 and 60-minute headways. This will necessarily eliminate the "pulse" (while helping to reduce excessive idling emissions associated with current pulse operations.) Schedules should be staggered where routes overlap on the same street. Departures from Monument Square stops should occur on easily remembered 5-minute clock increments. If layover time is required at the relocated Monument Square "hub," it should be minimized to the maximum extent possible with vehicles waiting at the existing Elm Street bus zone before circling the block to Monument Square.
- Extend Route 1's operating hours later in the evening to serve peninsula residents who are most likely to use transit outside of peak commuting hours.
- Adjust the routing of South Portland Bus Routes 1 & 4 to continue service on Congress at least from High to Union Streets (if not to Franklin Arterial or India Street), extend to the waterfront, then return southbound along Congress. Adjust schedules so that Monument Square departures are staggered with METRO service. This is easier to accomplish with the elimination of the "pulse."

Congress Street Bus Priority Corridor

Congress Street Bus Priority Corridor (Recommendation 6.9)

One of the greatest impediments to the predictable operations of METRO bus routes – particularly during peak hours of congestion – is the delay experienced when operating on the system's main spine of Congress Street. Particularly between High and Elm Streets, buses experience significant delays on Congress as the result of personal and commercial traffic, crossing pedestrians, and blocked bus stops. Schedule adherence is difficult to maintain on this corridor, and all routes operate on Congress Street.

Some U.S. cities have implemented a transit mall in their downtowns, converting an existing street to a bus-only corridor to improve performance in congested areas. Among the best examples are Denver's 16th Street transit mall – which operates high-frequency free shuttle service across the central business district, linking a rail station with light-rail lines and key employment, shopping, and dining destinations – and Minneapolis' Nicolette transit mall – which consolidates most bus lines along a key downtown corridor with light-rail service. The success of these examples is largely a product of the high level of service and demand in these large cities. A well-known example in a smaller city is Portland, Oregon's transit mall, which serves both buses and light-rail. While transit operations on this corridor are excellent, local businesses fronting the corridor have generally suffered from a lack of vehicular access, compromising the streetscape environment for passing pedestrians and waiting transit riders.

A successful hybrid option that could be applied easily to Portland with few infrastructure changes while retaining essential front-door access to businesses by cars and trucks can be found on Seattle's Third Street transit corridor. The corridor operates above Seattle's bus tunnel, providing supplemental service to meet the growing demand for bus transit in the region. The hybrid concept allows private and commercial vehicles to operate on the bus corridor, making only right-hand turns and traveling for no more than two blocks of Third Street during peak hours. A schematic of this operation is shown in Figure 6-4.

With the implementation of the corridor, buses on Third Avenue traveled 20% faster than they did previously.[4] Around the same time, daily bus boardings throughout downtown increased by about 10%.[5] These transit improvements took place while allowing area businesses to maintain essential vehicle access. Seattle's Center City continues to be a desirable location, as evidenced by the estimated $761 million in development projects completed in 2007.[6]

It should be noted that traffic volumes on parallel streets did increase due to Third Avenue restrictions, but travel times remained within one to two and a half minutes of previous times.[7]

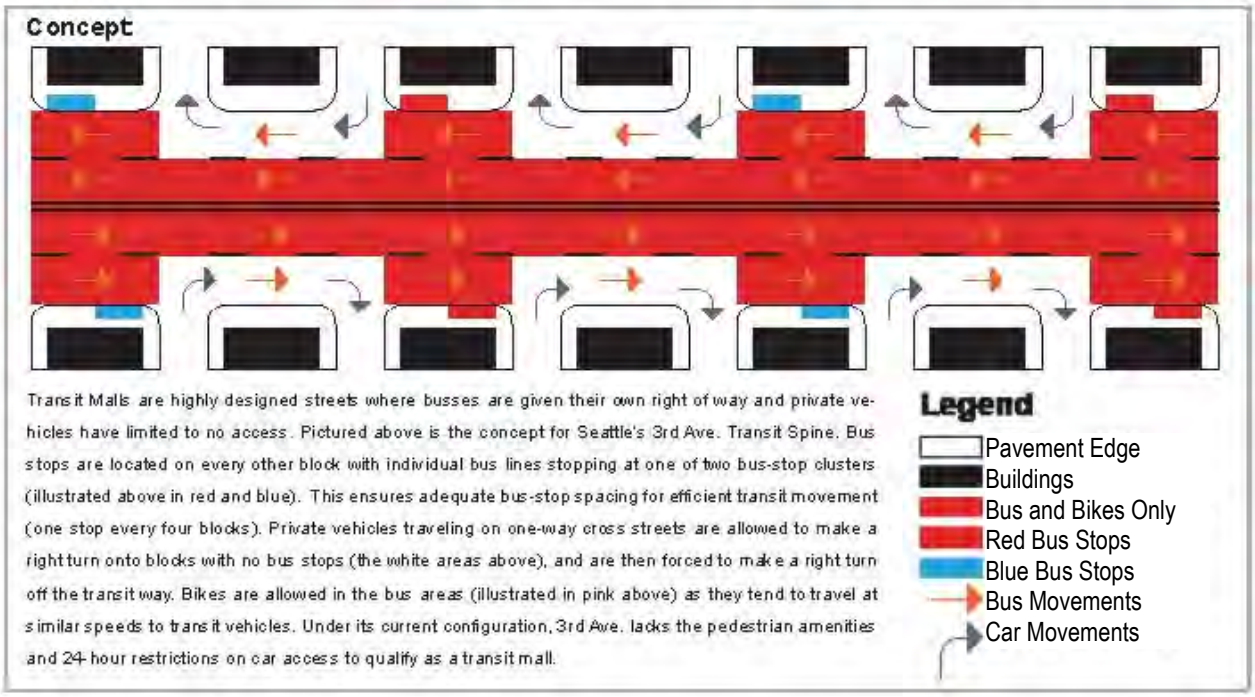
The hybrid transit mall concept can be applied to Congress Street between High and Elm or further, depending on operational needs. Clear signing can direct private through vehicles to the higher-capacity corridors of Cumberland or Spring. Normal regulatory signing on Congress can advise motorists of the new operations, and enforcement of all changes can occur through existing motor vehicle moving violations law.

Figures 6-5 through 6-7 provide plan, perspective and cross-section views of this treatment on Congress Street. There are several elements featured in this concept:

- Relocation of bus stops to existing curb extensions, which: 1) eliminates the need for buses to merge with traffic after stopping, 2) brings waiting passengers into clearer view of the bus driver, and 3) allows the addition of several new parking spaces on Congress Street.
- Bicycle boulevard markings the entire length of the corridor
- No left-turns onto or from Congress Street, except by buses
- Bicycle lanes on Elm and Preble Streets

[4] Source: Nelson\Nygaard Seattle Urban Mobility Plan Briefing Book
[5] Source: Seattle Department of Transportation, http://www.seattle.gov/transportation/3rdimp.htm
[6] Source: Seattle Department of Transportation, http://www.seattle.gov/transportation/3rdimp.htm
[7] Source: Nelson\Nygaard Seattle Urban Mobility Plan Briefing Book

Figure 6-4 Hybrid Transit Mall, Seattle Washington



Source: Paul Chasan

Figure 6-5 Congress Street Bus Priority Corridor Plan

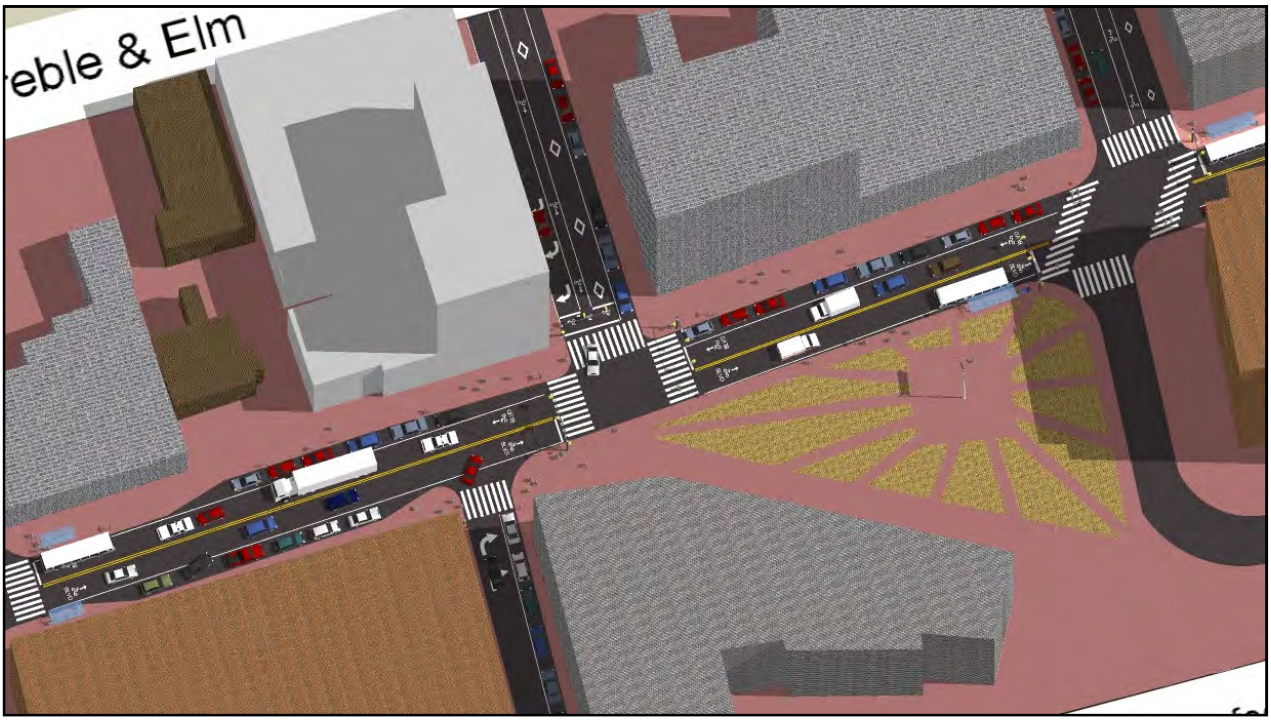
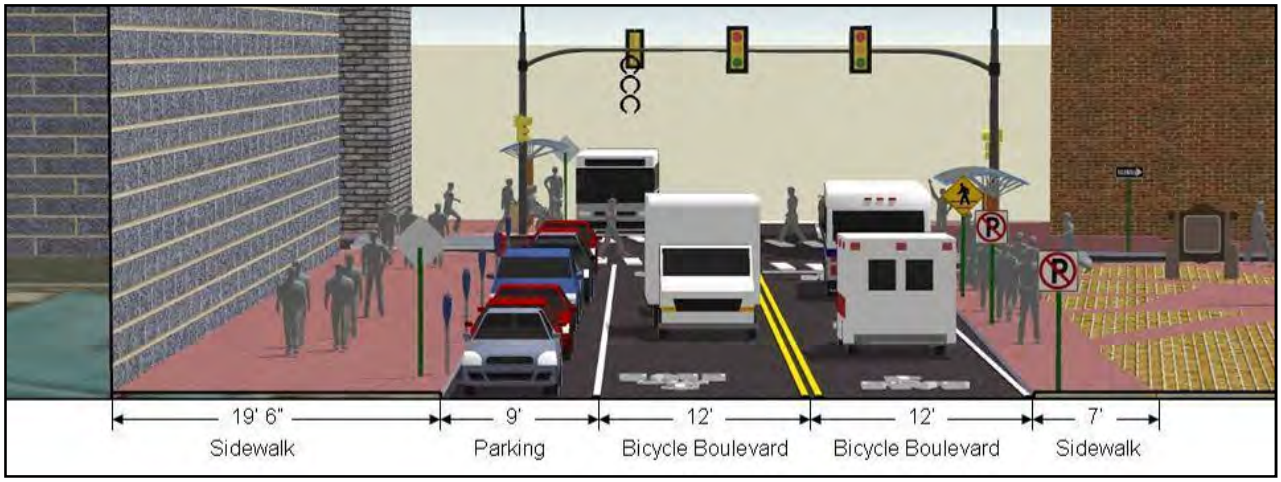


Figure 6-6 Congress Street Bus Priority Corridor Perspective

Figure 6-7 Congress Street Bus Priority Corridor Cross-Section



It should also be noted that Congress Street and Monument Square are important, centralized meeting places for a whole host of region-wide activities in Portland. Parades, concerts, festivals, weekly farmers' markets, and spontaneous celebrations occur with frequency year-round. It is not desirable to relocate these community gatherings to a less centralized location. Consequently, a final design for the Congress Street Bus Priority Corridor must include a reliable "event alternative" that re-routes buses to maintain regular service on a nearby corridor, such as Spring Street – complete with temporary bus stops and clear notification signs at diverted bus stops.

Increased Park & Ride Opportunities

Increased Park & Ride Opportunities (Recommendation 6.10)

For commuters to the peninsula, ZOOM Turnpike Express has already proven to be a great success. It's only limit on driving more peninsula commuters to transit is parking capacity at its park & ride lots. The City, in coordination with GPCOG, should actively promote the expansion of existing park & ride lots as well as work with Maine DOT to identify new park & ride locations.

The attractiveness and security of park & ride lots should be enhanced in partnership with local host communities, financed through nominal parking fees ($2 per day or less). All park & ride sites should provide efficient connections between cars and buses, direct routing for morning arrivals, protected walkways through parking, appropriate signing, needed landscaping and bio-swales, preferred lighting treatments, and informational kiosks. Appropriate curb cut and driveway designs that also make inviting entrances for walk-on riders should be made at all lots.

Short-Term Transit Strategies

With greater planning, coordination, and funding commitments, certain service and infrastructure improvements can provide a significantly higher level of transit service speed on key corridors accessing and traversing the Portland peninsula. Each strategy described below is intended to greatly increase commuter transit service and significantly elevate the visibility of transit.

METRO Bus Route Changes

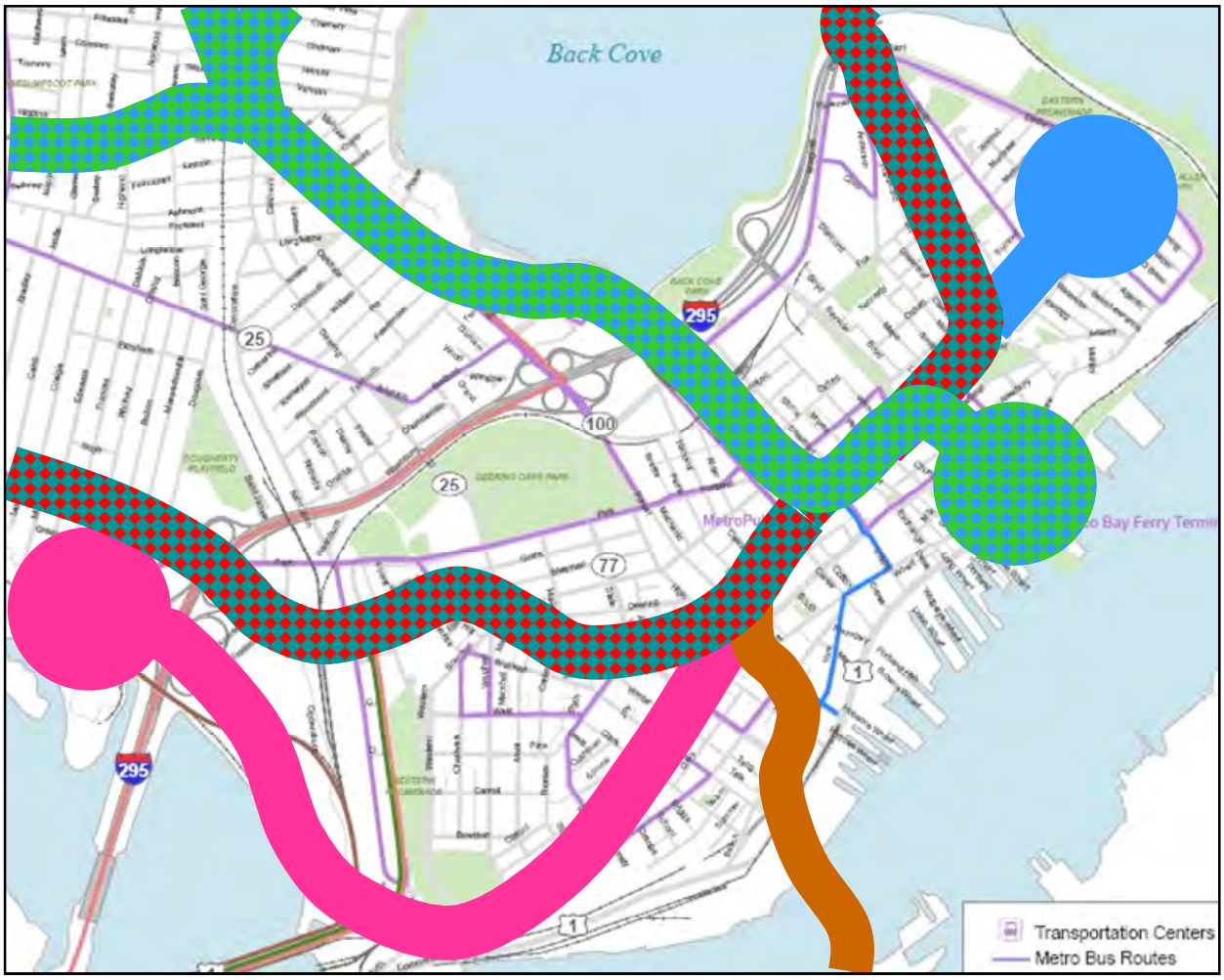
METRO Bus Route Changes (Recommendation 6.11)

Building upon the immediate route changes recommended in Section 6.3.1, The Committee has created a synthesis proposal for changing bus routes and service on the peninsula. Each component of this modified bus route system is explained below and summarized in Figure 6-8.

- Provide consistent 15-minute or less frequencies on key peninsula route segments by overlapping routes and staggering departures.
  - Routes 2, 4 and possibly 3 would be re-routed to run along Forest Avenue from Woodford's Corner to Preble Extension and the Preble/Elm pair (blue & green line in Figure 6-8).
  - Routes 5, 6 and 7 would be re-routed to run on Congress and connected as continuous through service (interlined) as a single route (purple & red line in Figure 6-8).
- Adjust off-peninsula ends of existing routes to be able to extend service on the peninsula.
  - Routes 2, 4 and possibly 3 would be evaluated for route reductions at their western ends to provide approximately 5 more minutes of time to extend their eastern end from the Elm Street hub to Commercial Street at the Eastern Waterfront.
  - Routes 5, 6 and 7 would be evaluated for route reductions at their distant ends to increase reliability once they become interlined.
- Route 1 service is maintained and staggered with other services on Congress Street and interlined with Route 5.
- Maintain the immediate term recommendations of re-routing Route 8 (magenta line in Figure 6-8) and South Portland Bus Routes 1 and 4 (mustard line in Figure 6-8).

These route and service changes provide increased and extended transit service along the Congress Street bus priority corridor, while also defining a second bus priority corridor running along Forest, Preble Extension, Preble/Elm, a portion of Congress, and a final street accessing the waterfront, such as Temple, Pearl or Franklin Arterial. This is further described in the "Cross-Peninsula Bus Priority Corridor" recommendation below.

Figure 6-8 Recommended Short-Term Bus Route System



Cross-Peninsula Transit Priority Corridor

Cross-Peninsula Transit Priority Corridor (Recommendation 6.12)

A second bus priority corridor running from Portland's off-peninsula neighborhoods to the waterfront can serve a very valuable transit purpose by connecting residents and jobs with a single frequent and high-quality service that serves Forest Avenue, the University of Southern Maine, Hannaford's, Bayside, Congress Street, and the Eastern Waterfront. A new transit hub would be created on Commercial Street at the Casco Bay Island Terminal.

Forest Avenue is a source of delays for Routes 2 & 4 due to traffic congestion, particularly at Woodford's and Morrill's Corners during peak hours. A variety of low and high cost transit priority measures can be applied to this corridor to improve bus travel times and schedule adherence, as described below. It is recommended that both routes divert to Preble Street Extension and the Pearl/Elm pair to enforce the transit priority corridor. The key elements of this corridor are described below.

Queue Jump Lanes & Signalization

At Woodford's Corner (and possibly Morrill's Corner), existing turn lanes can be converted to bus-only queue-jump lanes with posted penalties for private vehicle use. Signal modifications can be implemented to give the bus lane a 2-3 second advance to jump the waiting queue. Transponder technology can be utilized to activate this advance only when a transponder-equipped bus is present.

Reversible Bus-Only Lanes

Converting travel lanes to bus lanes is an effective solution that can be implemented in various forms, as illustrated by the following three options. Bus-only lanes offer passengers a quicker, more predictable trip that can improve service for existing riders and attract new ones, in turn reducing traffic congestion. Additionally, bus-only lanes are less costly than other forms of transit, easier to build, maximize flexibility by allowing multiple operators and types of service, and may be deployed in phases based on funding availability and demand.

Some city leaders are concerned about how removing travel lanes will impact traffic flows. However, there is a growing body of evidence claiming that where well-planned transit measures to reduce road space for private cars are implemented in congested areas and where no alternative network capacity is available, there is an overall long-term reduction in traffic. An acclaimed report commissioned by the UK Department for Environment, Transport and the Regions and London Transport found that in nearly 100 locations studied, though there was some initial congestion, road space reductions for private autos resulted in a 25% average overall reduction in traffic and a 14% median reduction in traffic.[8] It is also important to note that any effects on automobile travel can be managed by maximizing the performance and efficiency of the remaining mixed-traffic lanes through technological and design tools such as signal timing and traffic engineering.

In Portland, taking advantage of peak-direction traffic volumes, Forest Avenue between Woodford's Corner and USM can be converted to a reversible lane configuration with appropriate signing, striping, signalization, and moveable barriers (see Figure 6-9). The existing four-lane cross-section of 2-lanes in each direction would be converted to maintain two-lanes in the peak

[8] Source: European Commission: Reclaiming City Streets for People: Chaos or Quality of Life?

direction, have only one-lane operating "against peak," and assign the peak-direction curb lane as an exclusive transit lane, only allowing private vehicles to enter for right-hand turns or merging. This configuration would reverse in the opposite peak hour. Queue jumps at both ends of the corridor would allow buses to take necessary lefts across the general purpose lanes.

Figure 6-9 Reversed Bus Lane on Boston's Silver Line

Source: Nelson\Nygaard

Bus-Only Lanes

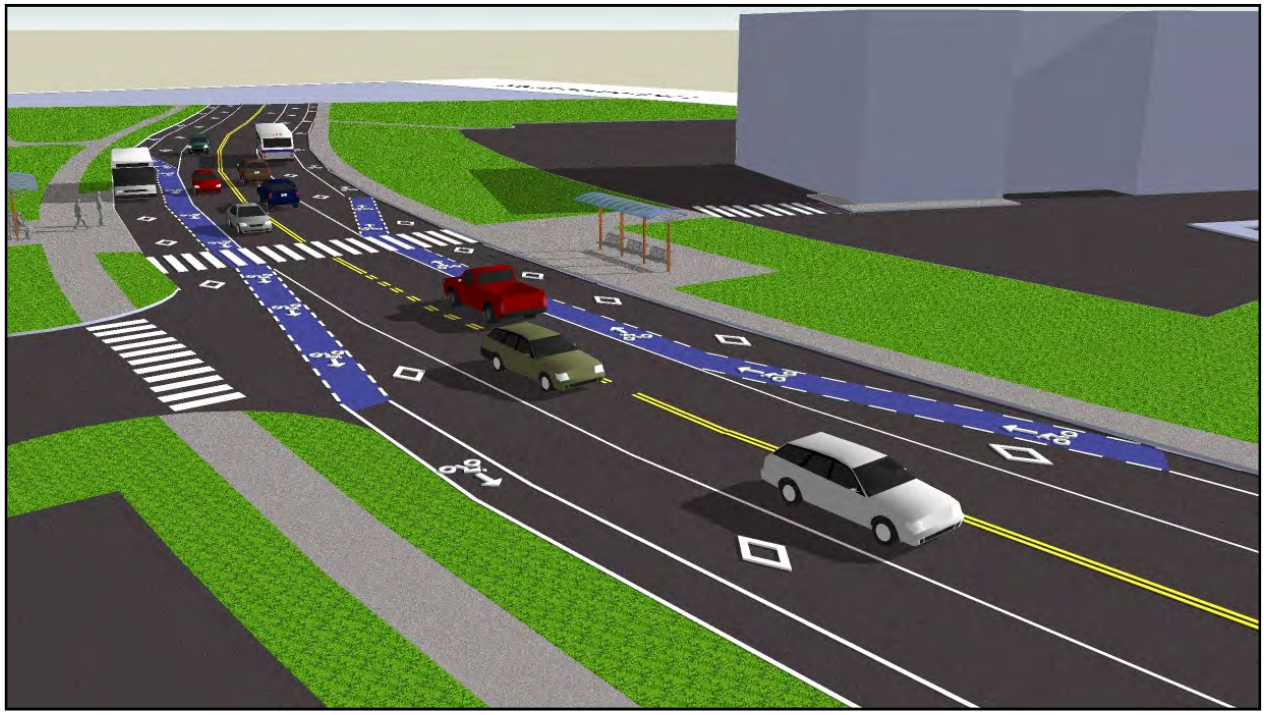
On Preble Extension and the one-way pair of Pearl and Elm, the existing right-hand lane can be converted to a bus-only lane, only allowing private vehicles to enter for right-hand turns or merging. Figures 6-10 and 6-11 depict how a bus lane would be designed on Preble Extension with a dedicated bus stop and pedestrian crossing for Hannaford's.

While bicycle lanes are often dropped when bus lanes are utilized, Preble extension has sufficient cross-section to retain bike lanes. Therefore, to protect the bicyclist and reduce conflicts, the bus driver and bicyclist are given clear visual queues in the form of blue pavement markings that designate the area where buses must head across a bicycle's path to reach a curb stop. An alternative – though more expensive – treatment would be to carry the bicyclist onto an off-street cycle track behind the bus stop, however this is rather unconventional.

To improve the safety and amenity of bus, pedestrian and bicycle operations at the Hannaford's stop, the most easterly Back Cove Trail parking lot curb cut should be closed.

Figure 6-10 Preble Extension Bus Facility Plan

Figure 6-11 Preble Extension Bus Facility Perspective



Bus lanes on Preble and Elm are depicted in Figures 6-12 and 6-13 as they intersect the Congress Street bus priority corridor. On the Preble Street approach, general purpose traffic can only turn right while most buses will typically be turning left. However, the bus will be to the right of cars heading up Preble. While retaining a typical configuration with the bus to the right of general traffic will work at this intersection – especially with signalization – the safer operation is

to swap these lane assignments. This can be accomplished easily by preventing general purpose through movements at Cumberland. Motorists would face a “Do Not Enter” sign and be required to turn left or right (general purpose access would be limited to those turning right or left from Cumberland into the curbside right-turn only lane.) Both buses and bikes could jog straight across Cumberland with the bus now keeping to the left curb and the bicycle continuing to its right. Bicyclists would have a safe option of taking the bike lane to turn left at Congress or staying in the right curb land for a right turn. The use of a bike box at the Congress Street stop bar enables the bicyclist to take the lane ahead of any turn movement.

At the top of Elm, the bike lane is depicted outside of the bus lane to enable bicyclists to have a left-turn bike lane at Cumberland. Through and right-turning bicyclists could use the bus lane to Cumberland. After Cumberland, the bike lane would resume its standard curbside placement.

Figure 6-12 Preble Street Bus Facility Perspective

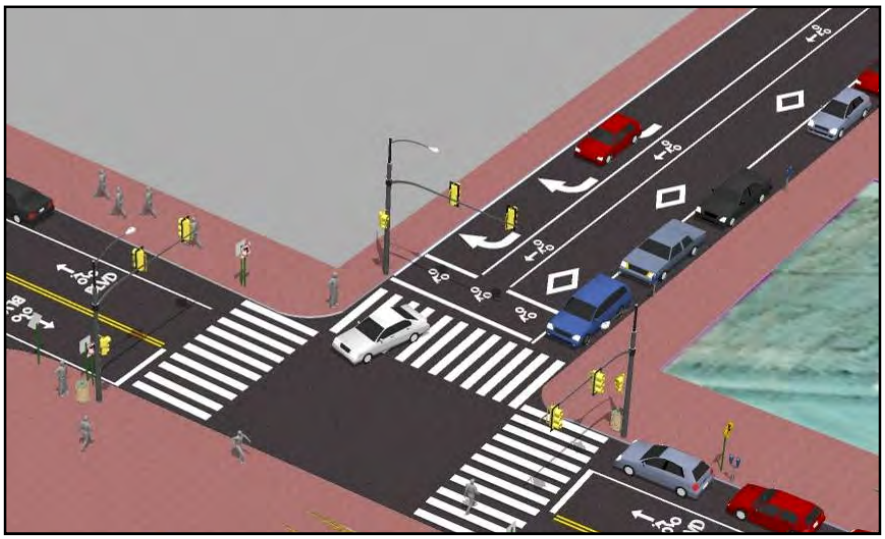
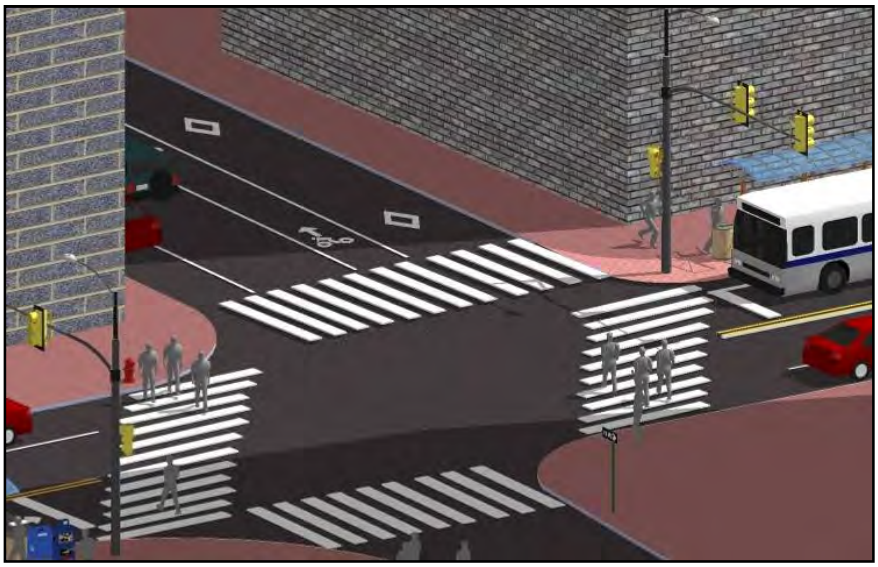


Figure 6-13 Elm Street Bus Facility Perspective



Budapest recently opened a dedicated bus lane to combat the city's declining use of public transit, rising car ownership and mounting congestion. As a result, buses have been able to travel at increased speeds, attain better reliability of service, and stabilize their ridership levels. Average travel times were reduced by 60-90 seconds, and 180-300 seconds in extremely congested situations, saving approximately ten thousand passenger hours annually. Also, as buses move faster, the need for extra buses to be allocated to the routes is avoided. Furthermore, traffic engineers estimate that the project's benefits repaid its costs within 24 months.[9]

North Corridor Bus Prioritization

With growing demand to access Portland from the north, PACTS is undergoing an alternatives analysis for a fixed-guideway transit solution onto the peninsula. In the interim, bus prioritization for METRO's north-reaching route (6 & 7) when they reach the peninsula may be appropriate. While roadway capacity on Washington Avenue does not exist to provide exclusive bus lanes, transit signal prioritization may be possible at Cumberland and Congress, or some parking could be taken to provide queue jump lanes. Optionally, a re-routing of services onto the Franklin Arterial with signal prioritization or queue jumping at Marginal Way and Cumberland may significantly improve trip times. However, re-routing should be limited to express services not intended to serve the East End.

Real-Time Arrival Information

Real-Time Arrival Information (Recommendation 6-13)

The most transformative strategy to attract riders is to provide real-time bus arrival information. Even where buses are always on schedule, a live indication of when the next bus is arriving greatly increases customer satisfaction, eliminates a barrier to attracting riders, and serves to make rubber-tire transit feel more like fixed-rail. There are varying degrees of information quality and technology cost to consider:

- Current location information, displayed on websites and web-enabled phones, such as TransLoc.
- Predictive information, available on call-in systems or on variable message signs at bus stops, such as NextBus.

TransLoc service is extremely inexpensive to implement, as no remote equipment is needed at bus stops. While usage requires a web-enabled cell-phone, TransLoc has produced significant increases in ridership in a number of markets. It is often considered an interim step towards predictive systems, since both require on-board GPS units.

Additional Transit Strategies

The development of additional longer-term transit strategies is intended to create a vision for the future of transit in Portland. By identifying the most likely future scenarios, any necessary right-of-ways can be maintained and incorporated into interim transportation and land use plans.

The long-term strategies below are intended to build upon the immediate and short-term strategies discussed above. These strategies represent a more significant investment in transit, with higher operating costs and higher capital costs. While The Committee has identified technologies that are considered very inexpensive as compared to traditional fixed-guideway

[9] Source: Documentation of the New Mobility 1999 conference

mass transit systems, the long-term strategies still represent a sizeable investment beyond current Portland transit costs.

Bus Rapid Transit

Bus Rapid Transit (Recommendation 6-14)

If the cross-peninsula bus priority corridor can be implemented successfully, Routes 2 and 4 may be converted to bus rapid transit (BRT) lines. BRT is defined as, "a flexible, rubber-tired rapid-transit mode that combines stations, vehicles, services, running ways, and Intelligent Transportation System (ITS) elements into an integrated system with a strong positive identity that evokes a unique image." In short, BRT uses various tools (dedicated running ways, longer inter-station distances, off-vehicle fare collection, ITS, "clean" vehicles, frequent service) to produce a fast and convenient method of transportation.

It has often been described as a rubber-tired version of light-rail transit (LRT). However, it differs in frequently having much lower capital and operating costs. BRT also stands in contrast to buses as a speedier, more reliable, and easily identifiable alternative. The advantages of BRT are:

- *Cost*. In deciding to construct a rapid transit system in 1976, Ottawa opted for BRT after it was discovered capital costs would be half those of rail transit and 20% cheaper to operate. BRT operating costs also can be the same or less per passenger trip than LRT.
- *Travel Times*. BRT time savings are influenced by the design of the system. Buses operated on dedicated running ways save between two to three minutes per mile while those same vehicles driven on arterial streets normally save one to two minutes per mile when compared to regular bus lines. Greater time savings are made during peak congested hours – Pittsburgh's BRT line reports a time savings of five minutes per mile during peak hours.

BRT was presented as a viable local solution by GPCOG in a 2001 national BRT competition. BRT services generally involve a number of sub-strategies to make bus transit "feel" more like rail transit, including:

- Higher-capacity low floor vehicles (see Figure 6-14)
- High-quality bus "stations" along the route with real time bus arrival information
- Reduced numbers of stops
- Fare pre-payment at bus stations

Figure 6-14 Bus Rapid Transit Vehicle

Source: USDOT Las Vegas MAX BRT Demonstration Project Evaluation

BRT systems have been implemented successfully in over 25 cities in North America, South America, Europe, and Australia. North American cities such as Vancouver, Boston (see Figure 6-15 below), Los Angeles, Las Vegas, and Eugene have found that BRT can reduce travel times, increase reliability, and attract new riders, all in a short period of time and with modest investment. BRT systems, can provide large increases in transit use and attract large numbers of discretionary riders who would otherwise travel by automobile. Various cities have seen significant increases in bus ridership with the introduction of BRT service – Pittsburgh (38%), Los Angeles (40%), Brisbane (42%), Adelaide (76%), Leeds (50%). Impacts of other expansions in transit vary depending on the conditions in which it is implemented.[10]

Figure 6-15 Boston's Silver Line BRT

Source: Nelson\Nygaard

It is worth noting the success of the Los Angeles Metro Rapid Program. This partnership between the Los Angeles County Metropolitan Transportation Authority (MTA) and the city of Los Angeles Department of Transportation (LADOT) is a marriage of major improvements in street design, to

[10] Victoria Transportation Policy Institute.

protect the speed and reliability of transit, with investment in frequent service, better buses and less frequent stops. According to the Federal Transit Administration, the result is an express arterial bus service that has reduced passenger travel times by as much as 29%, with ridership increases of nearly 40%. Approximately one third of the reduction in travel time results from the bus signal priority system, with the majority of the balance attributed to fewer stops and headway-based schedules.[11]

BRT is also a viable solution for longer-distance connections to the north and south of Portland. While such alignments were beyond the scope of this study, they are worth serious exploration.

Light Rail

Light Rail (Recommendation 6-15)

The North Corridor transportation study is currently evaluating improved transit service to Falmouth and beyond. Among the technologies likely to be considered is light rail. As a lower-cost alternative to traditional heavy rail subway systems, light rail transit (LRT) is an appropriate system for a metropolitan region the size and density of Portland's. LRT is fixed-rail service, yet it can operate in streets, transition easily from long-distance to short-spaced stops, and requires very simple and inexpensive platforms, with most systems requiring only a curb at sidewalk level.

Diesel Light Rail

Light rail is often installed as a retrofit to an existing abandoned or underutilized rail line. When such a corridor exists, the most expensive capital cost becomes the installation of overhead electric catenaries.

An innovative European technology that has been used with great success in more rural areas serving small to medium sized cities is diesel light rail. The fixed-guideway system operates on standard gauge rail without electrification. Each vehicle is independently powered and can serve simple transit platforms along existing right-of-ways. These vehicles are modern versions of the historic Budd cars, which once operated on many smaller scenic railroads in the United States.

A noteworthy example of diesel light rail is the Vinschgau Valley Railway in the Southern Tyrol of Northern Italy, a region with a similar economy to the Portland region. Since the 37-mile Vinschgau line was opened in 2005 on an abandoned railroad, it has surpassed expectations. Ridership met the three-year target after just one year and now exceeds 4,000 passengers per day. With connections to local and regional buses and other train lines, the convenient Vinschgau railway contributed to a 3% decline in vehicles on the road. Furthermore, the train has become a tourist attraction and the hallmark of the region. Figure 6-16 shows pictures of the Vinschgau vehicles.

[11] Federal Transit Administration. *Los Angeles, CA: Los Angeles County Metropolitan Transportation Authority and Los Angeles DOT*. Accessed at: http://www.fta.dot.gov/assistance/technology/research_4300.html.

Figure 6-16 Diesel Light Rail in Italy

Source: IBV

Diesel light rail would be best implemented on the rail corridor north of Portland where the current corridor study is active. It may also be a solution for transit access from the west and south. However, this study acknowledges the stated need for improved access from the north which is already being contemplated by the on-going northern corridor study. To the south, improvements to Amtrak service are likely to be more cost-effective than installing a new rail service.

While the historic standard-gauge freight rail corridor that runs through Bayside has often been considered to be the likely alignment for an extension north to Falmouth, this alignment would not serve Portland commuters well. With the exception of Bayside businesses, USM and the PTC, the majority of commuters to the peninsula are destined for the existing commercial core and the Eastern Waterfront. A more desirable alignment would serve all of the above major destinations directly. Fortunately, Portland has a historic alignment than can enable this to occur. This is explained below:

- Upon crossing the Back Cove inlet, the line could head east and share or parallel the existing narrow-gauge right-of-way along the Eastern Promenade to access the Eastern Waterfront and Ocean Gateway directly.
- The line could then be extended laterally across the peninsula to serve the commercial core, then Bayside. Vehicles could operate in the Franklin Arterial right-of-way or in-street on Pearl or other streets.
- After serving Bayside, the line could be extended south to serve USM, the ballpark/MMC, and the PTC by running in-street on Marginal Way or along the abandoned rail freight tracks.
- Further extension along the Mountain Division tracks to Westbrook could provide rail transit access to the west.

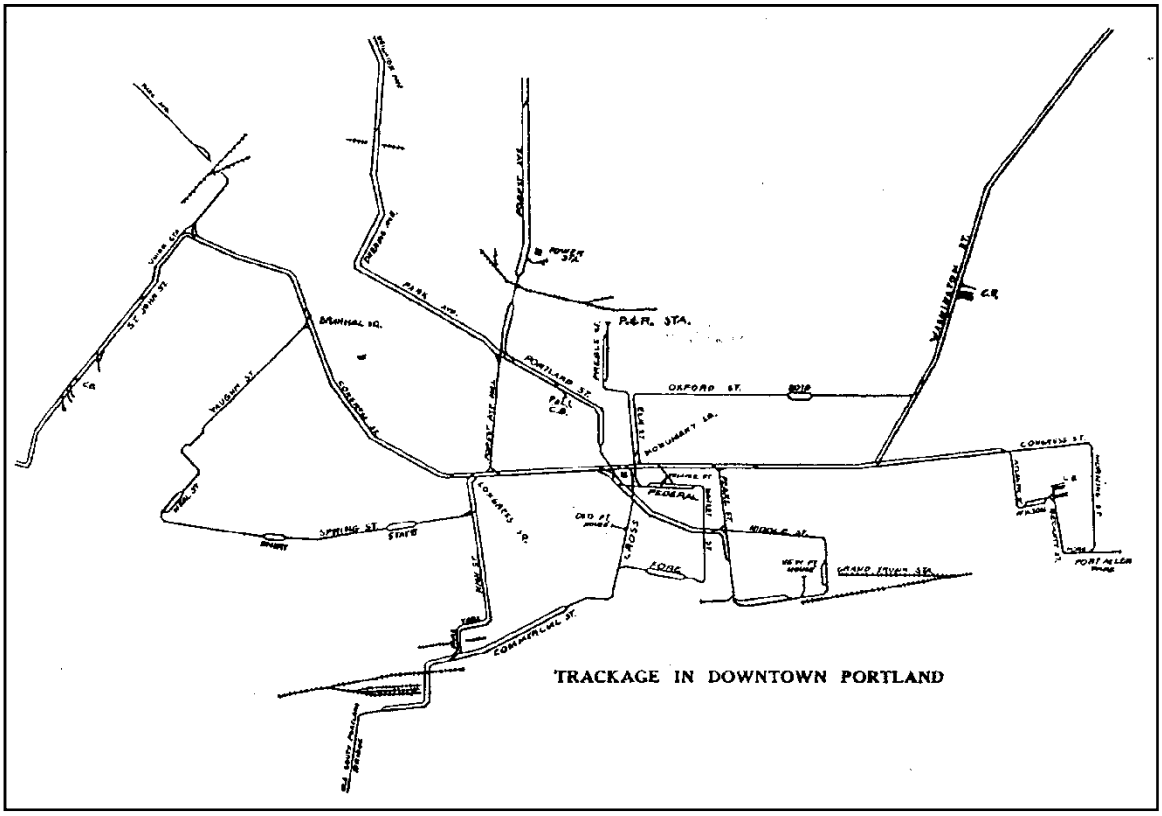
This alignment can be seen in the summary figure, 6-22. While the specific alignment may change, it is appropriate to recognize the key destinations this routing serves and identify corridors to preserve space for this or an alternate type of rail technology.

Waterfront Streetcar

Waterfront Streetcar (Recommendation 6-16)

More than a dozen North American cities have streetcar systems that have either expanded or initiated operation in the past 15 years. At least twice as many additional cities have new systems or lines under active planning. Streetcars have become popular because they provide cities with the ability to add visible rail service with a capital cost that is much less than the higher capacity light rail. Moreover, streetcars are a good fit for dense, pedestrian-oriented, urban neighborhoods and activity centers. Portland was once home to an extensive streetcar system (see route map in Figure 6-17 below).

Figure 6-17 Portland's Historic Streetcar System



Modern streetcar systems have numerous benefits. For one, they generally attract 15-50 percent more riders than bus routes. Recent examples of the replacement of bus service with streetcar service have seen clear ridership boosts. In Toronto, on routes where streetcar service replaced a nearly identical bus service, ridership increased 15-25 percent. San Francisco experienced a threefold increase over bus ridership on its historic F-line corridor since beginning streetcar service in 1995. In addition, since streetcars provide visible and easy-to-understand routing, they often attract new users, including both visitors and locals.

Streetcars are an excellent way to provide local circulation, promoting "park once" and pedestrian and transit travel throughout a high density activity center or multi-use corridor. Similar to other street-running modes, streetcars are generally focused on serving a neighborhood, not just moving through it rapidly. Streetcar stops are generally spaced closer together than light rail or bus rapid transit.

Streetcars also catalyze and organize development. Throughout their history, streetcar lines have been an organizing principle behind new development. Streetcars can provide a "focus" for dense pedestrian environments where access to local streetcar stops is possible by foot. Most of the modern streetcar applications in the United States have been catalyzed by the promise of new development, and in fact, have been championed by local developers who also partially funded the projects. In Memphis, for example, 4,000 residential units have been built within a block of the streetcar in a formerly underused industrial area, and in Tampa, over $800 million in new private development has been built along the 2.4 mile TECO line.

Streetcars can bring cost savings as well. Though their costs are higher than bus infrastructure, they are lower than light rail. The cost for streetcar construction is approximately $20-$40 million per mile and $2.5-3 million is typical for each car. This price compares to $50 to $75 million per mile for LRT implementation and $3-4 million for a light rail vehicle. Standard 40-foot diesel buses typically cost around $400,000, while articulated (65-foot) buses cost approximately $650,000 each. Hybrid electric buses typically cost about 50 percent more than diesel buses. While lower in cost, bus lines do not typically attract private funding for capital costs. Property owners often want to contribute to streetcar systems, realizing the value that a streetcar brings to their property and to the neighborhood. Additionally, streetcar vehicles have significantly longer lives than buses and may have equivalent life cycle costs.[12]

Streetcar service along the Commercial Street waterfront corridor would be visible for most Portland residents and visitors, though utilization would likely be limited to recreational and tourist uses. In the long-term, streetcar service could provide needed transit connections between future waterfront developments, existing transit services, the Casco Bay Lines terminal and possibly as far as the Portland Transportation Center. However, in the near future, Commercial Street service would mostly serve only tourist traffic, as most of today's primary trip patterns are oriented to and from the waterfront not along it. Therefore, a historic vehicle resurrecting Portland's past system would be appropriate (see Figure 6-18). Nonetheless, the waterfront is becoming an increasingly important destination for cross-peninsula movements, and a high level of activity is present, especially north of Temple Street.

Figure 6-18 Portland's Historic Streetcars

Source: New England Electric Railway Historical Society

[12] Source: Nelson\Nygaard Minneapolis Streetcar Feasibility Study

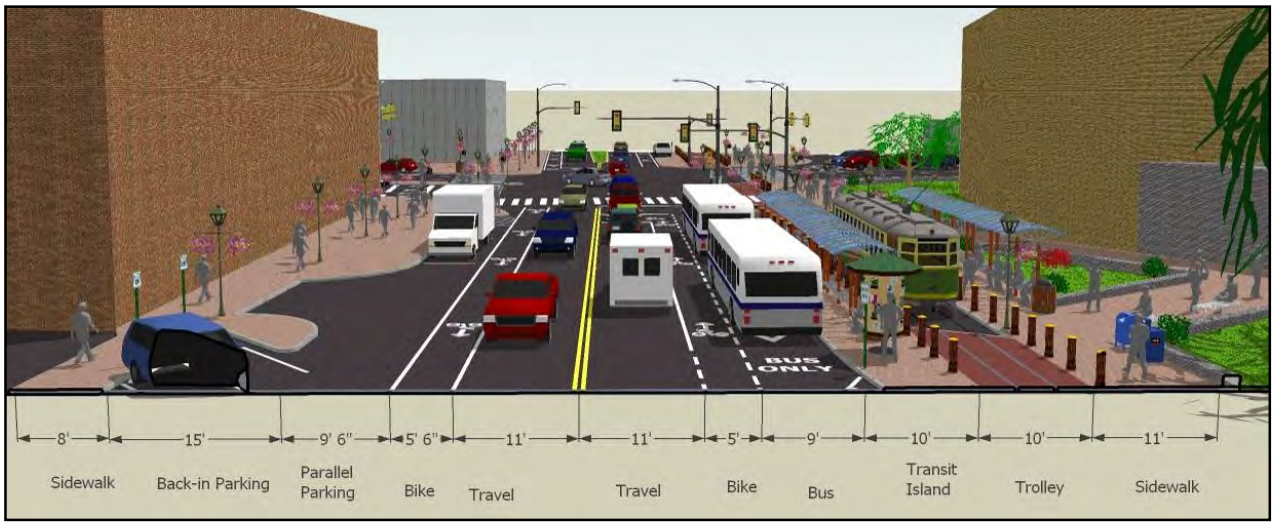
Based on Nelson\Nygaard's assessment of Commercial Street operations, the following elements describe how streetcar service could be installed. Figures 6-19 through 6-21 depict this installation in plan, perspective and cross-section views.

- By taking advantage of the wide Commercial Street right-of-way, a streetcar could be operated in the curb lane against the water-side sidewalk.
- On-street parking would be converted to a parallel configuration with loading zones as necessary, and the center loading lane (former railroad tracks) would be eliminated. All current center-lane loading operations can be accommodated in standard curbside loading zones as they are handled elsewhere in the city. The streetcar would run outside (east) of the eastern parking/loading lane.
- With placement along the water's edge, through traffic conflicts would be eliminated and the streetcar alignment would be well-defined and easily accessible for riders.
- Where angle parking can be retained on the western curb, it should be converted to reverse-angle parking. This is depicted in Figures 6-19 and 6-20. Reverse-angle parking is becoming increasingly popular, with extensive conversions of traditional-angle parking to reverse-angle in Canada. The practice is significantly easier to maneuver than standard-angle or parallel parking, and it is much safer for motorists, passengers and bicyclists alike. The reverse approach requires less complex alignment and only one maneuver, as compared to parallel parking. For departure, the motorist has a clear unobstructed view of on-coming cars and bicycles. Passengers find access easier as vehicle doors swing away from the curb, also helping to shield exiting/entering children from traffic. Shoppers prefer the treatment because their trunks are directly curbside, not out in traffic.
- The streetcar could operated south from Ocean Gateway, serving the light rail, and eventually providing service to and beyond the Casco Bay Bridge. If desirable, this alignment could eventually be extended to the PTC and beyond as a supplement to the preferred cross-peninsula light-rail alignment. However, ridership for service south of the Casco Bay Bridge is not expected to be high enough to justify this extension for many years.

Figure 6-19 Commercial Street Streetcar Plan

Figure 6-20 Commercial Street Streetcar Perspective

Figure 6-21 Commercial Street Streetcar Cross-Section



Summary

Figure 6-22 summarizes the transit routing recommendations presented in this section.

Figure 6-22 Summary of Transit System Recommendations

Chapter 7. Parking and Transportation Demand Management Strategies

While improvements to Portland's walking, biking and transit networks will have a very positive impact and attract trips away from personal automobiles, significant shifts from driving will only be possible if the current subsidy for driving is reduced or eliminated. Without addressing the financial incentive given for driving, large reductions in traffic are not possible.

Many American cities have revealed this subsidy for driving with dramatic results. Placed in the control of business owners, they have realized it is far cheaper to subsidize transit, walking and biking than it is to continue to support the automobile. In the hands of government, communities have been willing to dramatically curtail the convenience of driving for the sake of other modes, resulting in significantly reduced pollution impacts, increased development, and reduced tax rates. In the hands of residents, homeowners have recognized the value of their garages or driveways and transformed their travel habits in return for greater housing affordability.

The following section describes the existing subsidy for driving and several parking and transportation demand management (TDM) practices that can be implemented to achieve the shifts to transit, walking and biking that are necessary to avoid the roadway expansions identified in the Portland Peninsula Traffic Study.

Revealing Parking Subsidies

Central to understanding the need for the recommended parking and TDM programs below is understanding the role that parking plays in the development and daily life of Portland or, for that matter, any urban district in America. Parking has a unique role in American life that has largely been overlooked by planners, developers and drivers alike. Unlike any other form of transportation, the cost of parking is disassociated from its mode of transportation: the car. All modes have vehicles and terminals to access those vehicles: airplanes have expensive airports shared by multiple airlines with multiple flights that pay high user fees passed on to travelers; ships have enormous ports with vast longshore resources, each serving entire regions, with terminal and shipping costs a part of passenger tickets and bills of lading; and trains operate between stations, each with valuable land connections serving multiple purposes – of which a large part of the cost is passed on to the rider. However, the automobile must have a terminal at each and every destination, but 99-percent of all terminal arrivals are free to the driver in America. The user rarely pays the real cost to park. Even in Portland, where drivers must usually pay to park, the fees that are charged do not begin to cover the real cost of providing the terminal space for automobiles. The most expensive parking garage in Portland – which charges $125 per month (see Figure 7-1) – has an estimated actual cost of $188 per month (see Figure 7-2). As a result, drivers parking there receive a subsidy to drive and park their car of over $50 per month. If land value is factored in, an undeveloped surface parking space in Portland is estimated to have a value of at least $235 per month, but the average parking charge is only $88 per month – *a subsidy of nearly $150 per month to anyone who wants to drive.*

Figure 7-1 Survey of Downtown Parking Prices

Facility		Daily Rates	Weekly Permit	Monthly Permit	Hourly Rates
Baxter Place Lot				$70.00	
Casco Bay Parking Garage		$15.00			$1.25
Chestnut Street Garage				$69.00	
	Portland Gov't Employee parking (lease 140 spaces)			$63.65	
County Courthouse Garage		$8.00	$40.00		$1.50
Custom House Square Parking Garage (Bowles Property Management)				$125.00	$1.50
DiMillo's Lot					$5.00
Elm Street Parking Garage (City)				$100.00	$1.25
Fisherman's Wharf Parking Facility		$9.00			$2.00
Fore Street	(May-Sept.)	$10.00	$50.00	$80.00	
	(Oct.-April)			$100.00	
Free Street Parking Lot		$10.00			$1.00
Gateway Parking Garage				$95.00	$1.25
Lower One Portland Square Lot				$98.00	
Midtown Parking Lot		$6.00			$1.70
Monument Square Parking Garage				$100.00	$1.25
Omni/Casa Lot				$80.00	
One City Center Parking Garage				$100.00	$1.25
Port City Glass Lot		$5.00			
Portland Fish Pier, Front Lot				$80.00	
POT Front		$10.00		$80.00	
POT Rear		$10.00		$50.00	
Spring Street Parking Garage				$100.00	$1.25
Temple Street Parking Garage (Bowles Property Management)		$18.00		$115.00	$1.50
Top of the Old Port Parking Lot		$16.00	$35.00	$80.00	
AVERAGES		**$10.64**	**$41.67**	**$88.09**	**$1.67**
Facilities surveyed		11	3	18	13

Figure 7-2 Sample Parking Pro-Formas in Portland

Assumptions:

Variables	Input value	Comments
expected useful life of the parking lot:	35	years
long-term interest rate (i.e., discount rate):	6.00%	
workdays per month:	21.72	

Definitions

"Construction Costs" (aka "Hard Costs") are the brick-and-mortar expenses. Hard costs include all the costs for visible improvements, such as grading the site, pouring concrete, steel and steel workers, electrical work, carpentry and plumbing.
"Soft Costs" Soft costs are the costs that you cannot visibly see, such as architectural and engineering fees, environmental reports and any government fees, such as building permits. In the spreadsheet below, soft costs are entered as a percentage of construction costs. A typical rule of thumb is that soft costs will be equal to 27% of construction costs.
"Project Cost" equals Land Costs plus Construction Costs plus Soft Costs.
"Inflation Factor" is defined as the cumulative rise in the building cost index since the year the structure was built, using the Engineering News Record Building Costs Index for the region, as reported at http://enr.construction.com
"Original" costs means the cost at the time that the parking facility was built.

"Project Cost in Current Dollars" means the cost in today's dollars. This cost is arrived at by adjusting the original construction cost for inflation. In the spreadsheet below, "Project Cost in Current Dollars" is equal to the Original Project Cost multiplied by the Inflation Factor.

Capital Costs

		On-Street Parking	Parking Lot	Above Grade Garage	Below Grade Garage
a.	Spaces Built	1	1	1	1
b.	Number of parking spaces per acre	124	124	124	124
c.	Acres of Land Required (c=a/b)	0.01	0.01	0.01	0.01
d.	Land Value, per Acre [1]	$0	$4,000,000	$0	$0
e.	Land Costs (e=c*d)	$0	$32,258	$0	$0
f.	Original Construction Costs (industry average)	$5,000	$3,000	$22,000	$35,500
g.	Original Soft Costs	27%	27%	27%	27%
h.	Original Project Cost (h=e+f+f*g)	$6,350	$36,068	$27,940	$45,085
i.	Year Completed	2008	2008	2008	2008
j.	Inflation Factor	1.00	1.00	1.00	1.00
k.	Project Cost in Current Dollars (i=f*h)	$6,350	$36,068	$27,940	$45,085
m.	**Cost per Space Gained in Current Dollars (k=i/c)**	$6,350	$36,068	$27,940	$45,085

Resulting Costs Per Space Per Year

	Annual Debt Service, per Space (at 5%)	$438	$2,488	$1,927	$3,110
	Operations & Maintenance, per Space (US avg.)	$327	$327	$327	$327
	Total Annual Cost per Space per Year	**$765**	**$2,815**	**$2,254**	**$3,437**
	Total Annual Cost per Space per Month	**$64**	**$235**	**$188**	**$286**
	Total Annual Cost per Space per Workday	**$2.94**	**$10.80**	**$8.65**	**$13.19**
	Daily Parking Revenues [2]	**$2.00**	**$4.06**	**$4.06**	**$4.06**
	Net Subsidy	**$0.94**	**$6.74**	**$4.59**	**$9.13**
	Net Annual Parking Revenue	**($244)**	**($1,758)**	**($1,197)**	**($2,380)**

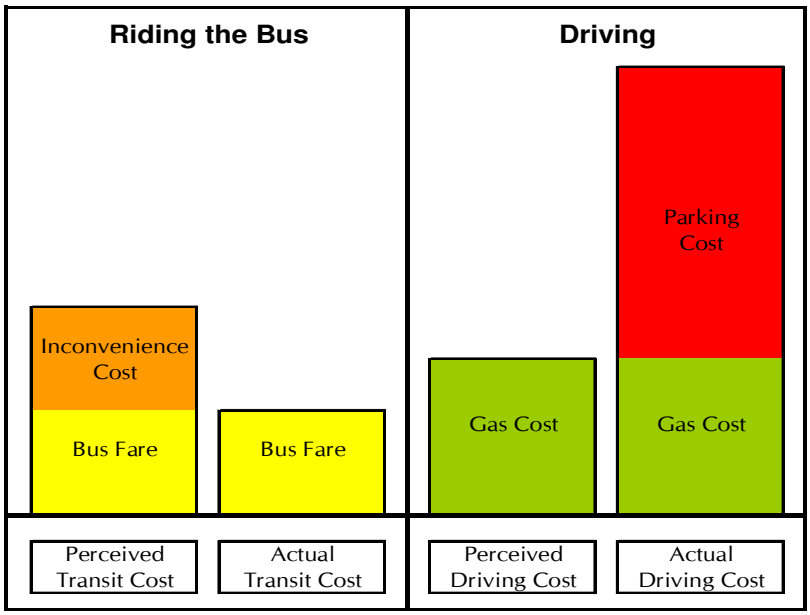
1 - Land value only factored for land with higher use potential. Value is low estimate based on local residential property sale values.
2 - On-street revenues estimated. Off-street revenues based on daily average of average monthly permit cost of $88.09.

This economic reality has been a way of life for Americans since the automobile began to proliferate as a means of transportation. Federal subsidies, local land use regulations, and development costs have largely hidden the cost of parking from the user, forcing it to be absorbed in many other aspects of our economy, such as housing and insurance costs, taxes, and the cost of goods and services. Many sources including the Federal government place the annual national

subsidy for parking infrastructure in America at over $300B in 2002 dollars[1]. In 2002, the budget for national defense was $349B. The hidden cost of motor vehicle transportation has recently become very clear as spiking gas prices have increased many other costs in our daily lives.

In the past several years, many communities have begun to rationalize the subsidy that is given to driving through the hidden cost of parking (see example in Figure 7-3). Communities such as Pasadena California, Boulder Colorado, Austin Texas, and Arlington County Virginia have recognized that their transit, walking and biking infrastructure was receiving far less subsidy if any at all. These communities, along with many large and small businesses throughout America, also began to recognize that the cost of building superior transit, walking and biking facilities was much cheaper than building more parking, especially in places like Portland that have high land values and high construction costs. Often driven by the accountants at their private partners[2], these communities quickly recognized that the massive amount of money directed at parking could instead be directed at broader community improvements that simultaneously reduced the demand for parking. Today, these communities have extensive and attractive multi-modal transportation systems that are financed almost entirely by the cost savings of not building parking structures.

Figure 7-3 Real Versus Perceived Out-of-Pocket Costs



Portland stands to learn a great amount from the experiences of these communities and businesses. By recognizing the growing modal inequity that is propagated by huge parking subsidies, Portland can redirect this enormous parking cost into community improvements that can achieve the goals of this study while preserving vital mixed-use neighborhoods for years to come.

[1] Sources include Mark Delucchi, University of California at Davis; Todd Littman, Victoria Transport Policy Institute; and the Office of Technology Assessment, U.S. Congress.
[2] For example, see Boulder's Central Area General Improvement District, where downtown parking construction decisions are managed by business members who directed investment in alternative modes of transportation when presented with the true cost of building new parking.

Understanding Parking Demand

For years (indeed, perhaps since the invention of the motorcar) the citizens of Portland have complained to their elected officials that there is too much traffic. Various controls have been put in place to control this problem, from speed bumps to stop signs, new parking garages to roadway expansions, and development review to strict zoning regulations. To prevent circling for parking and spill-over into neighborhoods, minimum parking requirements have been stringently adhered to. For half a century, virtually every city in America has had minimum parking requirements to prevent the perils of congested downtowns without enough parking, and yet not only has traffic congestion gotten worse, it is projected to steadily worsen over the next 20 years. Our problem has been to address traffic through supply-side solutions while ignoring the effect those policies have had on demand. By providing lots of roads and lots of parking, the traffic has come.

The Failure of Minimum Parking Requirements

Why was it believed that setting minimum parking requirements would alleviate traffic congestion? By the 1920s, the new problem of "spill-over parking" had already arrived in many downtowns. Automobiles filled up all of the curb parking in front of shops and apartments, and any nearby private parking, and then sometimes spilled over into nearby neighborhoods, crowding the streets there. In search of free parking near their destination, motorists often took to circling about, waiting for a space to open up. Instead of searching for parking, many motorists simply double-parked, clogging traffic lanes and greatly increasing congestion. Perhaps most importantly, well-known traffic engineers pointed out that if enough off-street parking were built to meet all possible demand, it would be much easier to prohibit on-street parking. The streets could then be filled from sidewalk to sidewalk with moving traffic.

The essential concept of minimum parking requirements was that if each destination provided ample parking, with enough spaces available so that even when parking was free there would be plenty of room, then there would be plenty of spaces at the curb. Motorists would no longer need to circle the block looking for a space, and so traffic congestion would be lessened.

Minimum parking requirements, however, had unintended consequences for traffic. Portland, like most cities, set minimum parking requirements that were simply high enough to satisfy the demand for parking even when parking was given away for free. The predictable result was that most destinations wound up with free parking.

Dozens of studies have now demonstrated that when parking is given away free of charge, people drive more. The amount of extra driving induced is substantial. Removing or reducing parking subsidies - subsidies that have been in good part created by minimum parking requirements - reduce vehicle trips by an average of 25% in locations throughout the United States. Given Portland's goals for this study, the role played by parking requirements cannot be overlooked.

Estimating Peninsula Parking Demand

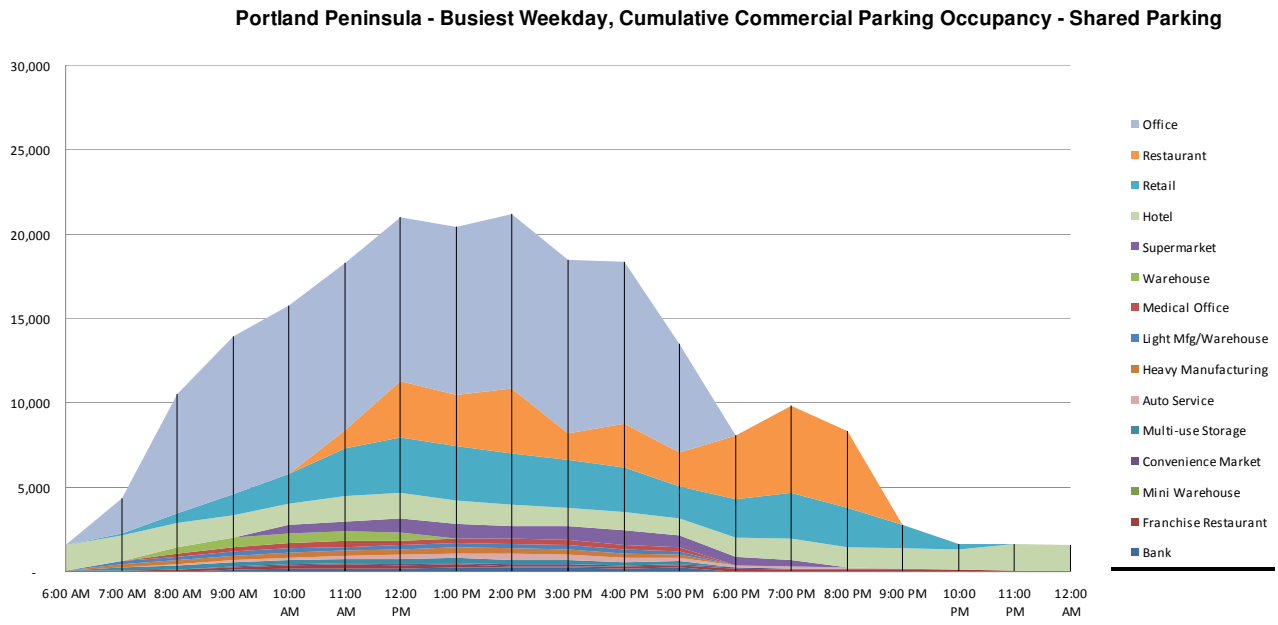
To evaluate the real need for parking on the Portland peninsula in comparison to the supply that has been constructed – largely in compliance with minimum parking requirements – a non-residential shared parking analysis for the entire peninsula was conducted. Utilizing existing municipal parking inventories and estimates of private off-street supplies, the total supply of non-

residential parking on the peninsula is estimated to be 24,000 spaces.[3] Land use data for the peninsula from GPCOG was then used to estimate parking demand according to standard Institute of Transportation Engineers parking generation rates and Urban Land Institute shared parking methodologies. These methodologies are considered to be standard conservative estimates for parking demand in mixed-use downtowns, utilized by most traffic engineering firms. The maximum daily parking supply required for non-residential uses on the peninsula is 21,000 spaces, as indicated in Figure 7-4. This ignores Portland's additional on-street supply of several thousand parking spaces, of which at least 5,000 are in commercial areas.

While this analysis suggests that Portland already has an oversupply of off-street parking, there are clearly neighborhoods and blocks where parking is in high demand. Spare capacity too far away is of no value to a congested location. However, given the extremely compact size of the peninsula and the potential to connect any single location to another in as little as a ten-minute walk, bike ride or bus ride, it may be time to reconsider what an "undersupply" of parking really means. Is this truly an undersupply, or just an undersupply of "convenient" parking. The definition of convenience is important. In Portland, walking, biking or riding a bus 10-minutes to your parking space seems intolerable. In Boston, this is standard practice, especially for people making under $100,000 a year.

With a more holistic look at peninsula circulation, and given demand reductions and improvements to non-driving modes of transportation, it is conceivable that Portland can add several million square feet of new commercial development without constructing a single additional parking space. Given the high cost of structured parking as demonstrated in Section The Failure of Minimum Parking Requirements above, significant resources could be available for investments in other modes of transportation that further reduce the demand for parking.

Figure 7-4 Shared Parking Analysis for the Portland Peninsula



[3] Parking count based on downtown municipal inventory, estimates of quantities from aerial photography, and space counts from aerial photography.

The conclusions of the shared parking analysis are easily supported by casual observations of downtown Portland parking facilities during peak workday periods. While the "Top of the Old Port" lots are full, many other facilities have hundreds of spare spaces available (see Figure 7-5).

Figure 7-5 Spare Peak Hour Parking Capacity in Portland

Civic Center Garage

BCBS Garage

Source: Nelson\Nygaard

On-Street Occupancies

Regardless of actual and modeled off-street parking demand numbers, a common perception of downtown Portland is that parking can be hard to find, which is generally the result of heavy on-street utilization. To assess the adequacy of Portland's on-street supply in its downtown commercial district, historic occupancy data was obtained from the City's Traffic and Parking Department on four key metered streets. Casco and Free Streets serve businesses along Congress Street, Dana Street serves retail in the Old Port, and Exchange Street serves shops connecting between the two sub-districts.

Observations were conducted seasonally from the Spring of 2007 until the Summer of 2008, during peak morning, midday, and afternoon accumulation periods. As noted in Figure 7-6, occupancies varied little by season, suggested consistent use patterns related to daily commerce.

None of the observed streets exceeded the optimum occupancy of approximately 85%, except Exchange Street during two observations. However, block face data is not available, so it is possible that certain street segments are fully occupied or fully vacant. Nonetheless, the data suggests that there is not a lack of off-street parking creating an on-street burden. In fact, as Figure 7-7 suggests, a fair amount of on-street parking resources are being underutilized in commercial areas where demand should be high. Public comment has suggested that parking is hard to find, however it would appear that this problem is limited to certain block faces or that time-limits are preventing parkers from staying on-street as long as they would like.

Figure 7-6 Observed Parking Occupancies on Downtown Streets, Spring 2007-Summer 2008

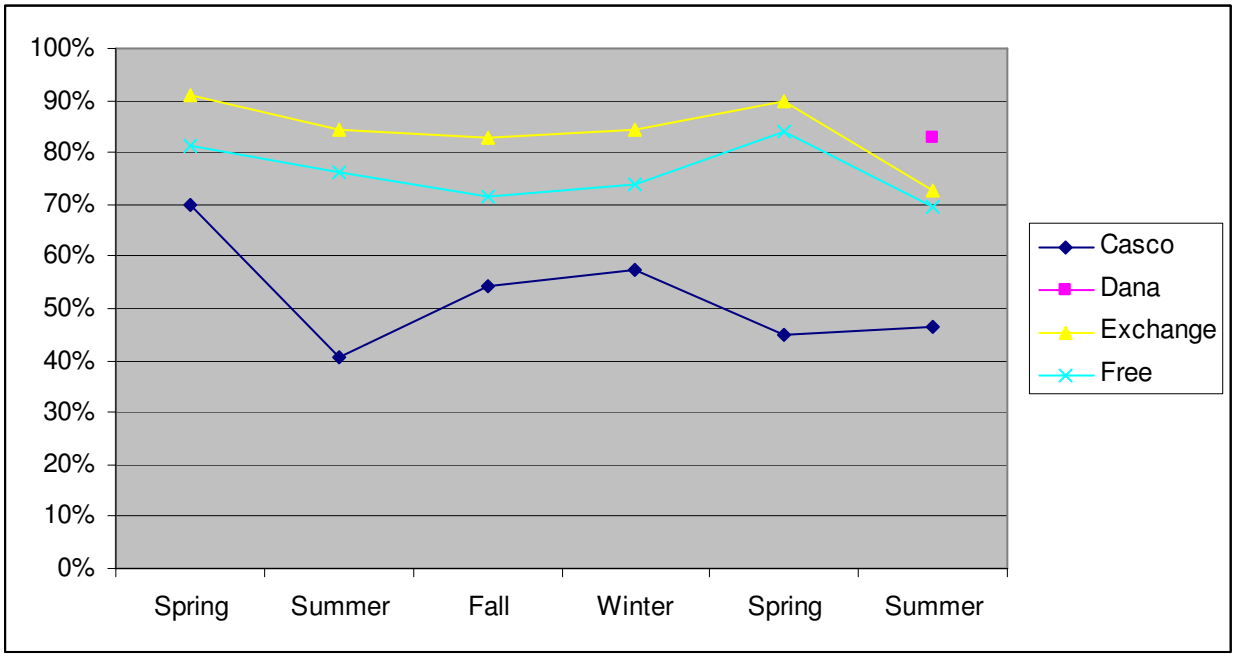
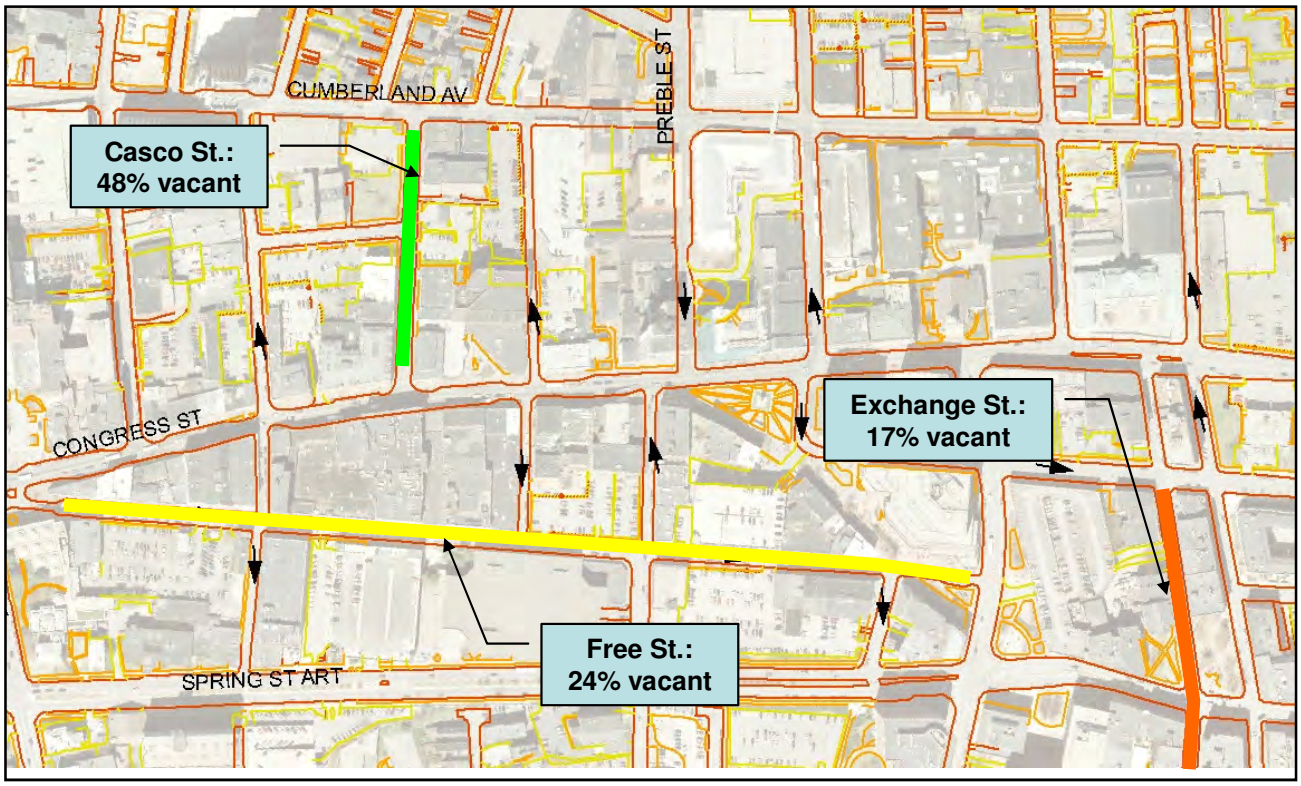


Figure 7-7 Vacant Parking During Peak Demand, Downtown Portland



Parking & Transportation Demand Management Strategies

The following program suggestions are derived from a review of best parking and transportation demand management practices conducted in communities throughout the United States, as applied to the Portland peninsula.

Pursue a "Park Once" Strategy

Pursue a "Park Once" Strategy (Recommendation 7.1)

Summary

Make efficient use of the parking supply by including as many spaces as possible in a common pool of shared, publicly available spaces. Share existing parking resources efficiently as a flexible pool, rather than many small, inefficient private parking areas. Complement with clear signing, wayfinding and pedestrian-oriented strategies.

Details

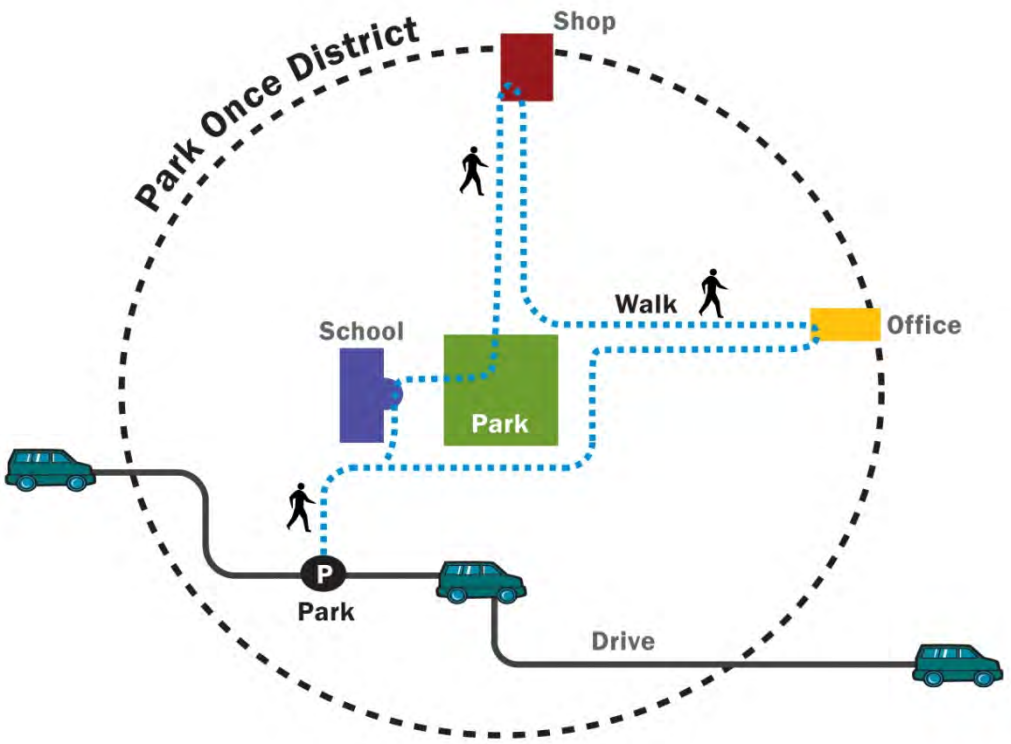
The creation of a "park once" environment is fundamental to Portland's goal of creating walkable districts in downtown (Old Port and Arts District), Bayside and the Eastern Waterfront. The typical pattern of individual buildings, each with its own parking supply, requires two vehicular movements and a parking space to be dedicated for each visit to a shop, office, or residence. To accomplish three errands in this type of environment requires six movements in three parking spaces for three tasks. With most parking held in private hands, spaces are not efficiently shared between uses, and each building's private parking is typically sized to handle a worst-case parking load. Most significantly, when new buildings are required to provide such worst-case parking ratios, the result is often pedestrian-hostile buildings that hover above parking decks.

When the practice of building individual private lots or garages for each building is adopted, the result is also a lack of welcome for customers: at each parking lot, the visitor is informed that his vehicle will be towed if he or she peruses any place besides the adjacent building. When this occurs, nearby shopping malls gain a distinct advantage over a district with fragmented parking. Mall owners understand that they should not divide their mall's parking supply into small fiefdoms: they operate their supply as a single pool for all of the shops, so that customers are welcomed wherever they park.

The compactness and mixed-use nature of the Portland peninsula lends itself to this kind of "Park Once" strategy. Operating the downtown parking supply as a single shared pool results in significant savings in daily vehicle trips and required parking spaces, for three reasons:

1. **Park once.** Those arriving by car can easily follow a "park once" pattern: they park their car just once and complete multiple daily tasks on foot before returning to their car (see Figure 7-8).

Figure 7-8 "Park Once" District



Based on an original illustration by Walter Kulash.

2. **Shared Parking among Uses with Differing Peak Times.** Spaces can be efficiently shared between uses with differing peak hours, peak days, and peak seasons of parking demand (such as office, restaurant, retail and the fine arts center).
3. **Shared Parking to Spread Peak Loads.** The parking supply can be sized to meet *average* parking loads (instead of the *worst-case* parking ratios needed for isolated buildings), since the common supply allows shops and offices with above-average demand to be balanced by shops and offices that have below-average demand or are temporarily vacant.

To implement a "Park Once" strategy, parking in Portland must be managed as a public utility, just like streets and sewers, with public parking provided in strategically-placed lots and garages. In the future, development should be prohibited (or strongly discouraged through TDM ordinances, impact fees, or maximum parking requirements) from building privately-controlled parking: in cases where certain tenants, such as new offices, require a guarantee of a certain number of spaces at particular hours (e.g., Monday through Friday, 9 a.m. to 5 p.m.), they should be provided with the opportunity to lease those spaces in a public lot or garage, with the exclusive right to use them during the hours required. As described above, such arrangements leave the parking available during evening and weekend hours for other users (e.g., with the patrons of restaurants), resulting in an efficient sharing of the parking supply and lower costs for all.

Implementation of simple signing improvements helps motorists easily find shared parking facilities when they chose not to seek on-street parking. Current signing for and visibility of most

public garages, for example, is very poor, and the pedestrian experience entering and exiting it is threatening. These highly valuable assets should be made significantly more inviting and secure for all users.

Overall, the benefits of fully implementing a "park once" strategy for the entire district include:

- More welcoming of customers and visitors (fewer "Thou Shalt Not Park Here" signs scattered about).
- Allows for fewer, strategically placed lots and garages, resulting in better urban design and greater development opportunities.
- Enables construction of larger, more space-efficient (and therefore more cost-effective) lots and garages.

Finally, and perhaps most importantly, by transforming motorists into pedestrians, who walk instead of drive to different nearby destinations, a "park once" strategy is an immediate generator of pedestrian life, creating crowds of people who animate public life on the streets and generate the patrons of street friendly retail businesses.

Create a Commercial Parking Benefit District

Create a Commercial Parking Benefit District (Recommendation 7.2)

Summary

To 1) efficiently manage demand for parking while accommodating customer, employee and resident parking needs, 2) *Put customers first:* create vacancies and turnover of the most convenient "front door" curb parking spaces to ensure availability for customers and visitors, and 3) develop revenues for implementing alternative transportation programs and infrastructure.

Details

Many downtown districts suffer from a common problem. The most visible and most convenient parking spaces are frequently entirely full, while simultaneously, parking spaces just behind or just under a building -- or a block away -- sit largely vacant. The result is often a perceived parking shortage, even when a district as a whole has hundreds of vacant parking spaces available. In many downtowns, employees occupy the best spaces, even when time limits are instituted to try to reserve these spots for customers.

Always available, convenient, on-street customer parking is of primary importance for Portland's businesses to succeed, in turn creating a welcoming environment for pedestrians. To create vacancies and rapid turnover in the best, most convenient, front door parking spaces, it is crucial to have price incentives to persuade some drivers -- especially employees -- to park in the less convenient spaces (in garages or in available on-street parking a block or two away): higher prices for the best spots and cheap or free prices for the less convenient, currently underused spaces.

Motorists can be thought of as falling into two primary categories: bargain hunters and convenience seekers. Convenience seekers are more willing to pay for an available front door spot. Many shoppers and diners are convenience seekers: they are typically less sensitive to parking charges because they stay for relatively short periods of time, meaning that they will accumulate less of a fee than an employee or other all-day visitor. By contrast, many long-stay parkers, such as employees, find it more worthwhile to walk a block to save on eight hours worth

of parking fees. With proper pricing, the bargain hunters will choose currently underutilized lots, leaving the prime spots free for those convenience seekers who are willing to spend a bit more. For Portland merchants, it will be important to make prime spots available for these people: those who are willing to pay a small fee to park are also those who are willing to spend money in stores and restaurants.

What are the Alternatives to Charging for Parking?

The primary alternative that cities can use to create vacancies in prime parking spaces is to set time limits and give tickets to violators. Time limits, however, bring several disadvantages: enforcement of time limits is labor-intensive and difficult, and downtown employees, who quickly become familiar with enforcement patterns, often become adept at the "two hour shuffle", moving their cars regularly or swapping spaces with a coworker several times during the workday. Even with strictly enforced time limits, if there is no price incentive to persuade employees to seek out less convenient, bargain-priced spots, employees will probably still park in prime spaces.

For customers, strict enforcement can bring “ticket anxiety", the fear of getting a ticket if one lingers a minute too long (for example, in order to have dessert after lunch). As Dan Zack, Downtown Development Manager for Redwood City, CA, puts it, “Even if a visitor is quick enough to avoid a ticket, they don't want to spend the evening watching the clock and moving their car around. If a customer is having a good time in a restaurant, and they are happy to pay the market price for their parking spot, do we want them to wrap up their evening early because their time limit wasn't long enough? Do we want them to skip dessert or that last cappuccino in order to avoid a ticket?" Repeatedly, surveys of downtown shoppers have shown that the *availability* of parking, rather than price, is of prime importance.

What is the Right Price for On-Street Parking?

If prices are used to create vacancies and turnover in the prime parking spots, then what is the right price? An ideal occupancy rate is approximately 85% at even the busiest hour, a rate which leaves about one out of every seven spaces available. This provides enough vacancies that visitors can easily find a spot near their destination when they first arrive. For each block and each parking lot on the Portland peninsula, the right price is the price that will achieve this goal. This means that pricing should not be uniform: the most desirable spaces need higher prices, while less convenient spots are cheap or may even be free. Prices should also vary by time of day and day of week: for example, higher at noon, and lower at midnight.

Ideally, parking occupancy for each block of on-street spaces and each garage should be monitored carefully, and prices adjusted regularly to keep enough spaces available. In short, prices should be set at market rate, according to demand, so that just enough spaces are always available. If this principle is followed, then there need be no fear that pricing parking will drive customers away. After all, when the front-door parking spots at the curb are entirely full, under-pricing parking cannot create more curb parking spaces for customers, because it cannot create more spaces. And, if the initial parking meter rate on a block is accidentally set too high, so that there are too many vacancies, then a policy goal of achieving an 85% occupancy rate will result in lowering the parking rate until the parking is once again well used (including making parking free, if need be).

Do Not Institute Time limits

Once a policy of market rate pricing is adopted, with the goal of achieving an 85% occupancy rate on each block, even at the busiest hours, then time limits need not be instituted. With no time limits, much of the worry and "ticket anxiety" for downtown customers disappears.

Return Revenue to the District

All surplus proceeds beyond what is currently being provided to the City's general fund plus any additional equipment cost should be directed to alternative transportation programs and infrastructure, such as universal transit passes (described below).

Provide Universal Transit Passes

Provide Universal Transit Passes (Recommendation 7.3)

Summary

Increase transit ridership and provide incentives to reduce vehicle ownership by providing free transit passes to all City staff, new residents or employees, or any other willing participants.

Details

In recent years, growing numbers of transit agencies have teamed with Cities, employers, operators of multi-family residential complexes and even with entire residential neighborhoods to provide universal transit passes. Universal transit pass programs, such as the Ecopass program created by Santa Clara County's Valley Transportation Authority, allow annual passes to be purchased at a deeply discounted bulk rate for all members of a specified group, such as all of a firm's employees, or all of the residents of an apartment complex. Negotiating with METRO for a similar program for Portland will benefit both employees and residents while cost-effectively reducing parking demand.

A typical example of a universal transit pass is the Eco-Pass program in downtown Boulder, which provides free transit on Denver's Regional Transportation District (RTD) light rail and buses to more than 7,500 employees, employed by 700 different businesses in downtown Boulder. To fund this program, Boulder's downtown parking benefit district pays a flat fee for each employee who is enrolled in the program, regardless of whether the employee actually rides transit. Because every single employee in the downtown is enrolled in the program, the Regional Transportation District in turn provides the transit passes at a deep bulk discount.

The principle of employee or residential transit passes is similar to that of group insurance plans – transit agencies can offer deep bulk discounts when selling passes to a large group with universal enrollment on the basis that not all those offered the pass will actually use them regularly.

Residential Transit Pass Programs

Universal Transit Pass programs have also been successfully created for a wide range of residential developments. In Santa Clara County, CA and Portland, OR property managers can bulk-purchase transit passes for their residents at deeply discounted rates. An affordable housing provider in San Jose, First Community Housing, provides all tenants of their developments (10 complexes in all) with a VTA Ecopass, giving them unlimited rides on VTA bus and light rail lines in Santa Clara County. First Community Housing pays $30 per year for each pass issued, and is required to purchase a pass for every resident. Residents receive their Ecopasses for free, saving

each resident the $700 per year cost of an annual bus pass. In a survey of First Community Housing residents, 22% of the survey respondents indicated that having an Ecopass has allowed them to reduce the number of cars in their household, resulting in less traffic, lower parking demand and reduced parking costs. Jeff Oberdorfer, Executive Director of First Community Housing, reports that, "Saving the construction cost of two parking spaces pays for our entire Eco Pass program."

Benefits

Universal transit passes provide multiple benefits, as discussed below.

For Transit Riders

- Free access to transit
- Rewards existing riders, attracts new ones
- For employees who drive, making existing transit free can effectively create convenient park-and-ride shuttles to any existing underused remote parking areas

For Transit Operators

- Provides a stable source of income
- Increases transit ridership, helping to meet agency ridership goals
- Can help improve cost recovery, reduce agency subsidy, and/or fund service improvements

For Downtown Districts

- Reduces traffic congestion and increases transit ridership
- Reduces existing parking demand: Santa Clara County's (CA) ECO Pass program resulted in a 19% reduction in parking demand
- Reduces future growth in parking demand: University of Washington's U-Pass program helped avoid construction of 3,600 new spaces, saving $100 million (since 1983, the university population increased by 8,000 but actually reduced the number of parking spaces)

For Developers

- Universal transit pass programs can benefit developers if implemented concurrently with reduced parking requirements, which consequently lower construction costs
- Providing free cost transit passes for large developments provides an amenity that can help attract renters or home buyers as part of lifestyle marketing campaign appealing to those seeking a "downtown lifestyle"

For Employees/employers

- Reduces demand for parking on-site
- Provides a tax-advantaged transportation benefit that can help recruit and retain employees

Free transit passes are often an extremely effective means to reduce the number of car trips in an area. By removing any cost barrier to using transit, including the need to search for spare change for each trip, people become much more likely to take transit to work or for non-work trips.

A Cost-Effective Transportation Investment

Many cities and institutions have found that trying to provide additional parking spaces costs much more than reducing parking demand by simply providing everyone with a free transit pass. For example, a study of UCLA's universal transit pass program found that a new parking space costs more than three times as much as a free transit pass ($223/month versus $71/month).

Develop a Parking Cash Out Incentive Program

Develop a Parking Cash Out Incentive Program (Recommendation 7.4)

Summary

Require employers to subsidize all employee commute modes equally and create incentives for commuters to carpool, take transit, and bike or walk to work.

Details

Many employers in Portland may wish to provide free or reduced price parking for their employees as a fringe benefit. Under a parking cash out requirement, employers will be able to do this *on the condition that they offer the cash value of the parking subsidy to any employee who does not drive to work*.

Employees who opt to cash out their parking subsidies would not be eligible to receive free parking from the employer and would be responsible for their parking charges on any days when they do drive to work.

Benefits of Parking Cash Out

The benefits of parking cash out are numerous, and include:

- Provides an equal transportation subsidy to employees who ride transit, carpool, vanpool, walk or bicycle to work. The benefit is particularly valuable to low-income employees, who are less likely to drive to work alone.
- Provides a low-cost fringe benefit that can help individual businesses recruit and retain employees.
- Employers report that parking cash-out requirements are simple to administer and enforce, typically requiring just one to two minutes per employee per month to administer.

In addition to these benefits, the primary benefit of parking cash-out programs is their proven effect on reducing auto congestion and parking demand. Most employers implementing a cash-out program can reduce their overall parking construction or leasing costs by at least 25-percent. The cost to cash-out each participant is more than compensated by the reduction in parking cost to the employer.

"Unbundle" Parking Costs

"Unbundle" Parking Costs (Recommendation 7.5)

Summary

To 1) increase housing affordability and housing choice, and 2) reveal the true cost of parking to employers and their employees.

Details

Parking costs are generally subsumed into the sale or rental price of housing for the sake of simplicity, and because that is the more traditional practice in real estate. But although the cost of parking is often hidden in this way, parking is never free. The expected cost for each space in a Portland parking garage is over $25,000 per space. Given land values in the area, surface spaces will be nearly as valuable (which accounts for the decision to create structured parking).

Unbundling requires some changes to status quo practices, since providing anything for free or at highly subsidized rates encourages use and means that more parking spaces have to be provided to achieve the same rate of availability. For both below-market rental units and market-rate condominiums, the full cost of parking should be unbundled from the cost of the housing itself, by creating a separate parking charge. This provides a financial reward to households who decide to dispense with one of their cars and helps attract that niche market of households who wish to live in a walkable, transit-oriented neighborhood where it is possible to live well with only one car (or even no car) per household. Unbundling parking costs changes parking from a required purchase to an optional amenity, so that households can freely choose how many spaces they wish to lease. Among households with below average vehicle ownership rates (e.g., low income people, singles and single parents, seniors on fixed incomes, and college students), allowing this choice can provide a substantial financial benefit. Unbundling parking costs means that these households no longer have to pay for parking spaces that they may not be able to use or afford.

It is important to note that construction costs for residential parking spaces can substantially increase the sale/rental price of housing. This is because the space needs of residential parking spaces can restrict how many housing units can be built within allowable zoning and building envelope. For example, a study of Oakland's 1961 decision to require one parking space per apartment (where none had been required before) found that construction cost increased 18% per unit, units per acre decreased by 30% and land values fell 33%.

As a result, bundled residential parking can significantly increase "per-unit housing costs" for individual renters or buyers. Two studies of San Francisco housing found that units with off-street parking bundled with the unit sell for 11% to 12% more than comparable units without included parking. One study of San Francisco housing found the increased affordability of units without off-street parking on-site can increase their absorption rate and make home ownership a reality for more people. In that study, units without off-street parking:

- Sold on average 41 days faster than comparable units with off-street parking
- Allowed 20% more San Francisco households to afford a condominium (compared to units with bundled off-street parking)
- Allowed 24 more San Francisco households to afford a single-family house (compared to units with bundled off-street parking)

Charging separately for parking is also the single most effective strategy to encourage households to own fewer cars, and rely more on walking, cycling and transit.

Offer a Parking Impact Fee Program

Offer a Parking Impact Fee Program (Recommendation 7.6)

Goal

Create a financial incentive for new developments to participate directly in TDM programs while creating a revenue stream to support TDM programs such as a universal transit pass program.

Details

Parking in-lieu fees have been in place in dozens of communities throughout America for years. By making a payment to the municipality, new developments can waive their minimum parking requirements. The fee is usually utilized for transportation improvements, particularly shared public parking facilities. An in-lieu fee has a number of advantages, as summarized by Donald Shoup[4]

1) Enables developers on constrained sites to build less parking.
2) Encourages development of shared parking facilities financed by in-lieu fees. A public parking facility shared by many users requires fewer total spaces than multiple individual developments due to the inherent overlap of peak demand times.
3) Shared public parking facilities financed by in-lieu fees can be placed strategically to serve many while reducing the potential impact to pedestrian and bicycle movements. This also frees up development parcels to create appropriate urban streetscapes without curb cuts and garage entrances.
4) Eliminates the need for zoning variances, fairly leveling the playing field for all developers and allowing planning boards to focus on design features as opposed to parking quantities.
5) Allows for historic preservation by enabling redevelopment of buildings without adding new parking.

In-lieu fees can be an effective method for cost-effectively providing parking in remote locations out of the control of individual land owners. By using fees to subsidize remote parking at locations with cheaper construction or leasing costs, communities can facilitate development financing while establishing a means to encourage appropriate development standards for participating developers. When fees are set appropriately, more efficient and better quality designs can be enabled while appropriate parking is provided off-site. If fees are designated to other transportation infrastructure or programs, Portland can avoid overbuilding parking and focus on alternative infrastructure.

[4] "In Lieu of Required Parking," Donald Shoup.

Establish a Car Sharing Program

Establish a Car Sharing Program (Recommendation 7.7)

Summary

To 1) enable Portland commuters to carpool, take transit, bike, or walk to work by ensuring that a shared car will be available for work trips when needed, and 2) enable Portland residents to reduce the number of private vehicles they own by ensuring that a shared car will be available for household trips when needed.

Details

Car sharing operators use telephone and Internet-based reservation systems, which allow their members a hassle-free way to rent cars by the hour with members receiving a single bill at the end of the month for all their usage. The shared cars are located in convenient neighborhood locations.

Car sharing has proven successful in reducing both household vehicle ownership and the percentage of employees who drive alone because of the need to have a car for errands during the workday. As a result, car sharing can be an important tool to reduce parking demand.

For residents, car sharing reduces the need to own a vehicle, particularly a second or third car. Recent surveys have shown that more than half of car-share users have sold at least one vehicle since joining the program in the San Francisco Bay Area.[5] For employees, car sharing allows them to take transit to work, since they will have a vehicle available for errands during the day.

With the vision of building improved mixed-use housing developments on the Portland peninsula and the implementation of the other recommended strategies (such as requiring that parking costs be unbundled from housing costs and that employers offer the option to employees to cash-out parking at work), car sharing will become much more viable than in conventional locations. If parking costs remain bundled into housing costs, or employee parking remains free with no cash-out program, then the prospects for a successful car sharing program will be considerably diminished.

Several cities, including the City of Berkeley and Philadelphia, PA have helped establish a native car sharing program in their communities and reduced their own fleet costs by contracting out some portion of their vehicle fleet to a car sharing provider. In this arrangement, the City serves as an “anchor subscriber”, which increases the financial feasibility of the location for the car sharing operator and allows more vehicles to be made available to the public, especially during evening and weekends when usage by city employees is low. The City should explore this model of contracting out part of its existing vehicle fleet. Implementation of a universal transit pass will also increase demand for car sharing among residents and employees (who begin taking transit but occasionally need a car).

Other Transportation Demand Management Programs

Summary

Invest in the most cost-effective mix of transportation modes for access to the Portland peninsula, including both parking and transportation demand management strategies.

[5] April 2002 survey by Nelson\Nygaard Consulting Associates for City CarShare.

Details

The cost to construct parking garages in Portland can be expected to be approximately $25,000 per space gained, resulting in a total cost to build, operate and maintain new spaces of approximately $150 per month per space, every month for the expected 35 year lifetime of the typical garage. These dismal economics for parking garages lead to a simple principle: it can often be cheaper to reduce parking demand than to construct new parking. Therefore, Portland should invest in the most cost-effective mix of transportation modes for access, including both parking and transportation demand management strategies.

The Maine DOT's and the Maine Turnpike Authority's "GO MAINE" commuter connections program offers many traditional programs designed to reduce driving, especially by single-occupancy vehicles. Administered by GPCOG, GO MAINE offers rideshare matching, vanpools, an emergency ride home guarantee, and walking and biking incentives, mostly to the employees of member businesses. GO MAINE has actively improved its services, including an improved rideshare matching database and additional vanpool vehicles. Nonetheless, additional strategies can be employed.

By investing in the following package of demand-reduction strategies, Portland can expect to cost-effectively reduce parking demand (and the resulting traffic loads). The Commercial Parking Benefit District should invest a portion of parking revenues (and other fees, grants, and/or transportation funds, when available) to establish a full menu of transportation programs for the benefit of all residents and employers. The transportation demand management programs should include:

Establishment of a Transportation Management Association (TMA) (Recommendation 7.8)

- **Establishment of a Transportation Management Association (TMA**). Create an independent peninsula-wide TMA and define roles and responsibilities between the TMA, the City, GPCOG and GO MAINE. While the TMA should interface directly with GO MAINE and offer its carpool and vanpool incentives and customized ride-matching services, a peninsula TMA should work to market the whole host of programs developed for the peninsula specifically (including Universal Transit Passes, car-sharing, and parking cash-out). A tailored transportation information package for new employees and residents should be developed, and an active marketing program to advertise the services to employees and residents should be an important part of the TMA's responsibilities. One of the biggest hurdles to getting people out of their cars is the lack of clear guidance on alternatives. A local TMA can target Portland better than GO MAINE has the capacity for.
- **Guaranteed Rides Home**. A major reason why employees are reluctant to try new ways of commuting is the worry that they might be stranded at work. For instance, they might have to stay at work beyond transit service hours or their carpool partner must leave early for an emergency. GRH programs address these fears by offering emergency taxi rides home to employees when they are unable to return home using their standard arrangement. It provides a level of certainty that allows people to comfortably try alternative ways of getting to and from work. The Portland peninsula TMA should go beyond GO MAINE's offerings to allow greater ride home security for peninsula commuters.

Transportation Resource Center(s). (Recommendation 7.9)

- **Transportation Resource Center(s).** A storefront office that provides personalized information on transit routes and schedules, carpool and vanpool programs, bicycle routes

and facilities and other transportation options could be established either on a City level or specifically for key developments and their surrounding neighborhoods. The Center would take responsibility for administering and actively marketing all demand management programs.

To some extent, parking demand in Portland will depend on how new development is marketed and presented to the public. A marketing message that stresses the availability of transit, the transportation demand management programs, the "unbundling" of parking costs from housing costs, the mix of uses within walking distance of each other, good bicycle amenities, and the availability of car-sharing is likely to attract households who want the choice to own just one vehicle – or in some cases none at all.

Portland Zoning Changes

Several modifications to the existing Portland zoning code (Article 14) are recommended that would work to encourage better utilization of parking resources and promote the flexibility necessary to support many of the recommended TDM programs. These zoning changes focus on parking regulations that do not match the existing use patterns and desired planning context for Portland's peninsula. While many great land use plans have been proposed for Bayside, the Eastern Waterfront, and other development areas in Portland, many elements of the current zoning do not allow these plans to occur without multiple variances or special permits, which serve to delay project approval and discourage developers from securing necessary permits.

Based on a review of best practices from around the country, the following changes to Portland's zoning code are recommended.

Eliminate Front Yard Parking

Eliminate Front Yard Parking (Recommendation 7.10)

Front yard parking is currently prohibited in some parts of the zoning code:

- B-1 and B-1b Neighborhood Business Zones
- B-2, B-2b (on peninsula only) and B-2c Community Business Zones
- Nonresidential uses in R-P Resource Protection Zone
- O-P Office Park Zone
- On lots containing two or more dwelling units, except within one driveway on the lot

However, it is allowed where not specifically excluded. Front-yard parking greatly detracts from the pedestrian experience in urbanized areas, separating pedestrian-oriented facades and entrances from walking paths.

An overall prohibition of front yard parking should be placed in the off-street parking section of the ordinance, Division 20.

Revise Off-Street Parking Distance Requirement

Revise Off-Street Parking Distance Requirement (Recommendation 7.11)

In Portland's current zoning ordinance, it is mandated that required off-street parking in residential zones be located on the same lot with the principal building or use. Where it cannot be provided

on the same lot, it must be located not more than 300 feet away, measured along lines of public access. For nonresidential zones, the required off-street parking must be located on the same lot or within 100 feet; if that is not possible, it must be within a "reasonable distance."

These distances do not reflect the amount of time it may take to walk to convenient off-site parking. At a moderate walking speed of 3.5 feet/second, a motorist can walk 300-feet in about 90 seconds. Given the walkable nature of the Portland peninsula, this maximum requirement is far too low, especially when encouraging shared parking, walking, and infill development. This requirement should be eliminated or at least revised to a more reasonable walking time of 5 or 10 minutes, or at least 1,000 to 2,000 feet.

A section revising the off-street parking distance requirement should replace the sections outlining the distance requirement in Division 20, Sections 14-333 and 14-334.

Consider Removing Minimum Parking Requirements

Consider Removing Minimum Parking Requirements (Recommendation 7.12)

Currently, Portland's zoning does have minimum parking requirements for a variety of land uses. Exceptions to these mandated minimums do exist for large structures and historic structures. However, some precedents do exist for eliminating these minimums from the zoning code, or reducing them. These include:

- In the IR-3 Island Residential Zone, and the B-5 and B-5b Urban Commercial Mixed Use Zones, off-street parking is not required
- In the Eastern Waterfront Port Zone, Waterfront Central Zone, and Waterfront Special Use Zone, off-street parking is reduced to 50% of stated requirements
- In the I-B Island Business Zone, off-street parking is reduced to 25% of stated requirements, except for residential uses, which must meet the full requirement
- For each affordable housing unit within an eligible project, no more than one parking space shall be required

Further reductions or elimination of minimum parking requirements can occur if on-street management programs are in place to prevent any adverse spill-over effects. Since many users may not need parking, requiring its construction can be a costly imposition. Where the market demands more parking, the are no restrictions.

Division 20 should include a provision eliminating these requirements for many downtown uses, especially in walkable areas where strong on-street parking management practices have been put into place.

If minimums remain, Portland should consider allowing on-street parking to contribute to supply if supported by a detailed parking occupancy study.

Allow Shared Use Parking As-of-Right

Allow Shared Use Parking As-of-Right (Recommendation 7.13)

Shared parking is encouraged in Division 20 of the current zoning code. For the B-1 and B-1b Neighborhood Business Zones, the B-2 Community Business Zone and B-3 Downtown Business Zone, the ordinance states that the Board of Appeals may approve the joint use of a parking

facility by two or more principal uses where it is clearly demonstrated that parking will be demanded at different times of day.

Shared parking is also mentioned in other sections of the ordinance. For instance, in the B-5 and B-5b Urban Commercial Mixed Use Zones, "it is anticipated that such denser, mixed uses would rely on a shared infrastructure system, including service alleys, parking lots, public transportation facilities, stormwater management, and driveways." Also, the B-6 Eastern Waterfront Mixed Zone and the B-7 Mixed Development District Zone promote "shared use of parking infrastructure as recommended in the eastern waterfront master plan for redevelopment."

However, the zoning ordinance is not totally straightforward on these policies. In Division 20, it states that when two or more uses occupy the same premises, the off-street parking requirements of both uses shall be met in full, which does not suggest the reduction in overall parking supply implied by shared parking.

A section permitting shared parking for appropriate uses should be inserted into Division 20 or into the divisions specific to those uses.

Permit/Incentivize Tandem & Stacked Parking

Permit/Incentivize Tandem & Stacked Parking (Recommendation 7.14)

Stacked parking is mentioned for the residential zones (R-1 through R-6). At day care facilities/nursery schools/kindergartens, listed as conditional uses in these zones, the code states that "parking spaces may be stacked or placed side by side in order to lessen their impact on the residential character of the lot and the neighborhood."

An overall tandem and stacked parking allowance should be added to Division 20.

Require TDM Plan for Any Expansion of GFA (New TDM Ordinance)

Require TDM Plan for Any Expansion of GFA / New TDM Ordinance (Recommendation 7.15)

A TDM ordinance give Portland the ability to incorporate some or all of these recommendations into future development. The City is currently evaluating a possible ordinance. It should be added as a separate Article near the end of the zoning ordinance, where special programs and policies are listed. Several good examples of TDM ordinances in the United States are provided in Appendix E.

Chapter 8. Action Plan for the Peninsula Transit Study

This chapter represents a detailed summary of the actionable items discussed in Chapters 5-7, including programmatic details, responsible parties, estimated costs, and other relevant implementation details. These items are supplemented by supporting strategies necessary to implement the concepts discussed above. The Action Plan is intended to be a guide for implementing the recommended strategies of the Peninsula Transit Committee. Since actual implementation is in the hands of a variety of stakeholders on the peninsula, the Action Plan is intended to be a bridge relating future operational efforts to the planning efforts of the Transit Study. It is highly likely that specific actions will be modified to reflect changing conditions and new stakeholders. However, the Committee hopes that the basic elements of this plan can be retained as a guide for all future action.

The Action Plan includes a **phased implementation timeline** for all recommended peninsula transportation improvements, policies, and programs, including immediate-term actions (within 1 year), short-term actions (within the next 5 years), and long-term actions (within the next 10-20 years). This is followed by an **implementation schedule** summarizing all critical elements (see Appendix F).

Immediate Term Actions (Within One-Year)

Parking and Transportation Demand Management

1) Institute a Trip Reduction Program

Institute a Trip Reduction Program (Recommendation 8.1)

The City of Portland should take a leadership role that reflects the principles of reducing vehicle trips on the peninsula. If staff cannot change their travel patterns to reflect the goals of the Committee, there should be no expectations on other stakeholders. Therefore, a new trip reduction program should be implemented that commits the City and all City staff to the principles of reducing vehicle trips on the peninsula by taking the lead on TDM programs and setting an example for peninsula businesses and residents. In order to ensure that this program continues in perpetuity, it is recommended that the program be formalized by City Council action on an ordinance. Key elements of the program would include:

- **Mobility Coordinator.** Identification of a designated Mobility Coordinator to manage and promote TDM programs. The Coordinator should be a housed in the Planning Department but hired as a direct employee of the City Manager with authority to initiate the required changes in payroll and benefits systems to allow for such programs as paid parking, universal transit passes, parking cash-out, guaranteed rides home, etc.
- **Parking Cash-Out.** A parking cash-out program should be the Coordinator's first responsibility. The City should calculate its average cost per space per month to own, lease and maintain all spaces used by City staff. At least 50 percent of this average price should be offered to all employees as a monthly benefit in their paycheck in return for giving up parking privileges.
- **Reduced Parking Supply.** City staff should immediately seek to reduce the City's outlay for parking privileges by observing daily occupancy in all staff parking facilities. Where peak occupancy is below 85% for all City spaces within a 5-minute walk of an employment

location, the City should seek to terminate leases or redevelop land for profitable uses or community space.

- **Universal Transit Pass.** The City should negotiate with METRO to provide a universal transit pass (with photo identification) to all City staff. One-hundred percent of City employees should be entitled to receive the pass for free if requested. The bulk rate negotiated with METRO should reflect actual ridership rates, based on usage statistics (currently this is estimated to be under 10%). The City should also negotiate with South Portland Bus, Casco Bay Lines and ZOOM/ShuttleBus to extend the universal pass to all potential transit providers. By taking the initiative to develop this peninsula program, the City can pave the way for private employer programs to be developed through a TMA.
- **Outreach Materials.** The Coordinator should prepare outreach materials to market alternative transportation methods and distribute these to all employees on a regular basis.
- **Bike Racks.** The City should install APBP compliant bike racks at all City buildings and seek to provide secure covered bike parking and employee showers at most if not all City buildings.

Responsibility

City of Portland

Cost

– Designation of a new employee position (possibly $100,000 per year)

Timeframe

As of this writing, the City has drafted a preliminary TDM ordinance that would apply to new private development. However, this ordinance does not include similar actions by the City and should be revised, or a new trip reduction program or ordinance for the City should be drafted.

2) Establish a Transportation Management Association[1]

Establish a Transportation Management Association[2] (Recommendation 7.8)

In partnership with GO MAINE, GPCOG, PACTS, the Chamber of Commerce, METRO, South Portland Bus, CBITD, the Maine Medical Center, the University of Southern Maine and any interested employers or advocacy organizations, the City should advocate for the creation of an independent peninsula-wide TMA. The TMA would be the primary conduit for connecting employees and residents with Portland-area TDM programs.

[1] Not to be confused with a Transportation Management Area, which is a Federal Transit Administration designation for receiving Section 5307 grant funding.
[2] Not to be confused with a Transportation Management Area, which is a Federal Transit Administration designation for receiving Section 5307 grant funding.

Responsibility

City of Portland and GPCOG in partnership with Maine DOT, Maine Turnpike Authority, the Chamber of Commerce, GPCOG, METRO, South Portland Bus, CBITD, the Maine Medical Center, the University of Southern Maine and any interested employers or advocacy organizations.

Cost

All costs are paid by membership dues from all public and private partners (including the City), based on the number of employees each member has.

- **Option A)** Basic TMA responsibilities include preparing new employee packages, operating a centralized website, and providing call-in information. This requires a single staff position with a production budget, generally housed within a member business or agency.

  – $100,000 per year

- **Option B)** TMA's often provide employee services, including arranging guaranteed rides home, universal transit pass negotiations, TDM ordinance compliance, transit planning assistance, individualized marketing services, etc. Generally this requires staff support and a bigger operating budget.

  – $200,000 per year

- **Option C)** Most TMA's develop around the need to provide joint employee shuttle services. A Portland TMA shuttle would likely connect the front doors of member businesses to transportation terminals such as the PTC, CBIT, and Maine Turnpike park & ride lots. This would likely require at least three vehicles.

  – $650,000 per year

Timeframe

Initial organization can begin immediately. A member Board is established and dues and services determined. Usually a TMA can be functional within 9 month.

3) Establish a "Sustainable Transportation Fund"

Establish a "Sustainable Transportation Fund" (Recommendation 8.2)

The City should create a separate account for expenditures that support the recommendations of this study. It would be funded by surplus revenues from municipal parking fees, permits and impact fees, with payments dedicated to improvements near the source of collection, as described in items 7, 8 and 9 below. All proceeds and expenditures should be reported monthly and managed by the Mobility Coordinator with direct oversight by an advisory committee. Elements include:

- **Mobility Coordinator:** Identifying a Mobility Coordinator who would also implement the City's Trip Reduction Program.
- **TMA Coordination:** Direct coordination of efforts with the membership of the Portland TMA.
- **Advisory Committee:** Improvement programs to be decided in coordination with an advisory committee staffed by representatives of the businesses and residences where funds are collected and invested, including volunteers from the merchant community, the Chamber, land owners, residence managers, local residents, and neighborhood organizations.
- **Transparency:** Specific revenue and expenditure reporting procedures should be established to ensure transparency. If public revenues must go into the General Fund, revenue tracking procedures must be established to maintain transparency and preserve a virtual Sustainable Transportation Fund.
- **Web Resources:** A sustainable transportation webpage should be established on the City's site to report finances, improvement initiatives, and opportunities for the advisory committee and the public to be involved in project prioritization.

Responsibility

City of Portland

Cost

N/A

Timeframe

Creation of the Sustainable Transportation Fund should occur as soon as possible to demonstrate the City's willingness to create a mechanism to implement the infrastructure recommendations of the Peninsula Transit Study.

4) Adopt a TDM Ordinance

Adopt a TDM Ordinance (Recommendation 7.14); TDM Toolbox (Recommendations 7.4-7.5)

Require all new developments on the peninsula to become members of the peninsula TMA and require implementation of TDM programs. Key points that should be incorporated include:

- **TDM Toolbox:** New development should be required to implement one or more TDM measures from a "toolbox" of options. Preferred options include:
  - Providing an on-site Mobility Coordinator or utilize the services of the TMA if available.
  - Marketing GO MAINE options to all tenants.
  - Establishing a Universal Transit Pass for all tenants.
  - Provide a car-share space at no charge to a Portland car-share organization or provide private on-site shared cars.

- Incentivize parking cash-out **(Recommendation 7.4)**. Marketing of parking cash-out advantages to employers should be done by the TMA and/or the Mobility Coordinator by developing basic pro formas to demonstrate the real cost of parking versus alternatives.
- "Unbundle" parking costs **(Recommendation 7.5)** whereby all future housing development "unbundles" the cost of parking from the cost of the living areas, either by charging a rent/lease rate or selling the parking space separately. This can be implemented through a zoning ordinance that requires the separation of cost for all ownership or rental units without causing any loss of income to developers.[3]

- **Monitoring Goal:** Development should report on the implementation of selected TDM measures, as well as conduct annual trip and mode split monitoring and establish a trip monitoring goal or threshold, above which additional TDM measures would be required. The goal should be based on a single-occupant-vehicle mode share percentage, as opposed to an absolute number of vehicle trips. The threshold should be based on surveys of similar peninsula organizations, Census Journey to Work data, or a City-supported goal. Ideally, the threshold would be a 10-percent or greater reduction from existing observed data.
- **Parking Impact Fees:** Development may optionally participate in the Parking Impact Fee program, described below.
- **Design Requirements:** Suggested requirements for all new development: minimum bicycle parking quantities of at least one space per five vehicle spaces, compliance with APBP bicycle parking standards (see Chapter 5.4.3), screened/wrapped vehicle parking, minimum driveway sightlines (at least 20-feet to the left and right of an exiting car's path when crossing a sidewalk), maximum driveway slopes of 8-percent within 15-feet of a sidewalk, level sidewalks on all building frontages (no dropped curbs), minimum sidewalk widths of 8-feet on the peninsula, and transit information & shelters where appropriate.

Appendix E provides examples of TDM ordinances from other communities that could be used as a model for Portland's.

Responsibility

City of Portland

Cost

N/A

Timeframe

As of this writing, the City is in the process of drafting a TDM ordinance which could go into effect before the end of the calendar year.

[3] See Section 167 of the San Francisco City Planning Code (http://www.municode.com/Resources/gateway.asp?pid=14139&sid=5)

5) Establish a Transportation Resource Center

Establish a Transportation Resource Center (Recommendation 7.9)

Create a visible one-stop information kiosk or storefront to market Portland's sustainable transportation programs, disseminate multi-modal transportation information, and provide visitor assistance. It would feature information about the Portland TMA, Portland's trip reduction programs, the Sustainable Transportation Fund and its advisory committee, each transit provider's route and fare information, a consolidated transit system map, walking routes, bicycle parking locations and quantities, and current Portland transportation planning information. Ideally, the Center would be located on Monument Square near Congress Street. A key first step will be finding a sponsor to provide a location in an existing building fronting Monument Square.

Other resource centers or unmanned kiosks should be established in priority intermodal transfer locations, such as the PTC, the CBIT, the Vermont Transit terminal, and the current Downtown Transportation Center (the "pulse").

Responsibility

City of Portland in cooperation with local businesses, the Chamber of Commerce, METRO, CBITD, South Portland Bus, other transit providers and possibly other major employers such as MMC or USM.

Cost

- Ideally, the Center is not just a kiosk but a manned location where personal assistance can be provided. Many communities integrate this function with other "ambassadorial" functions, such as tourist information.
- $12,000 per year for space rental (unless a private sponsor can be found)
- $50,000 per year for part-time staff (unless integrated with existing Chamber or City services)

Timeframe

The Center can begin operation as soon as possible to advertise existing Portland transportation programs.

6) Pursue a "Park Once" Strategy

Pursue a "Park Once" Strategy (Recommendation 7.1); Shared Parking (Recommendations 7.11-7.14)

Through customer-friendly efforts to encourage availability, turn-over and convenient access, the City of Portland and private parking operators should begin managing the peninsula parking as a system that optimizes the efficient use of existing resources without needing to construct additional parking. There are several components that should be pursued in parallel to achieve a successful park once district in downtown:

- **Expand Parking Visibility.** All publicly-accessible off-street parking facilities should be very clearly signed at entrances as well as with drivers' wayfinding signs from key

downtown gateways, such as along Franklin, High, State, Congress, Commercial and Danforth Streets. Hourly and daily rates should be clearly posted in advance of entering a facility in a consistent font and size recommended by the City.

- **Sign Pedestrian Connections.** All pedestrian access points should be clearly marked inside and outside the facility, and simple directional signs should be provided at exits that include the fronting street, compass direction, and nearest attraction. Parking locations should be incorporated in the City's planned wayfinding system.
- **Shared Parking.** Promote shared parking among different existing and future land uses through revised zoning language flexibility **(Recommendations 7.11, 7.13 & 7.14),** reduced parking requirements **(Recommendation 7.12),** and leasing of public spaces by the City for shared parking purposes. If the City requires developers to demonstrate where minimum parking will occur, there should be no comparison to the required minimums of the other users sharing the subject facility(s). Only observed occupancies should be evaluated for sufficient capacity.
- **Complementary Uses.** Require as a condition of approval for new development that all non-residential parking be shared with other users and/or made available for public parking when not needed for its primary commercial use.
- **Park Once Leased Pool.** The City should consider offering any private parking operator in the downtown a guaranteed lease payment for all existing spaces at a competitive rate in return for being able to operate those spaces as part of the "Park Once" pool. The City would assume all personal liability, security and maintenance costs in return for being able to lease parking to individuals or businesses at rates based entirely on demand. Land owners, parking operators, businesses or residents can lease specific, convenient, dedicated spaces at a higher rate. For a discount, specific quantities of spaces can be guaranteed at locations within a 5-minute walk. Greater discounts would apply for fully-shared "first-come, first-served" spaces. Any surplus revenues should be dedicated to the Sustainable Transportation Fund.

Responsibility

City of Portland. Requires zoning changes and legal framework for leases and liability.

Cost

– N/A for zoning & leased pool

– $100,000 for signing program

Timeframe

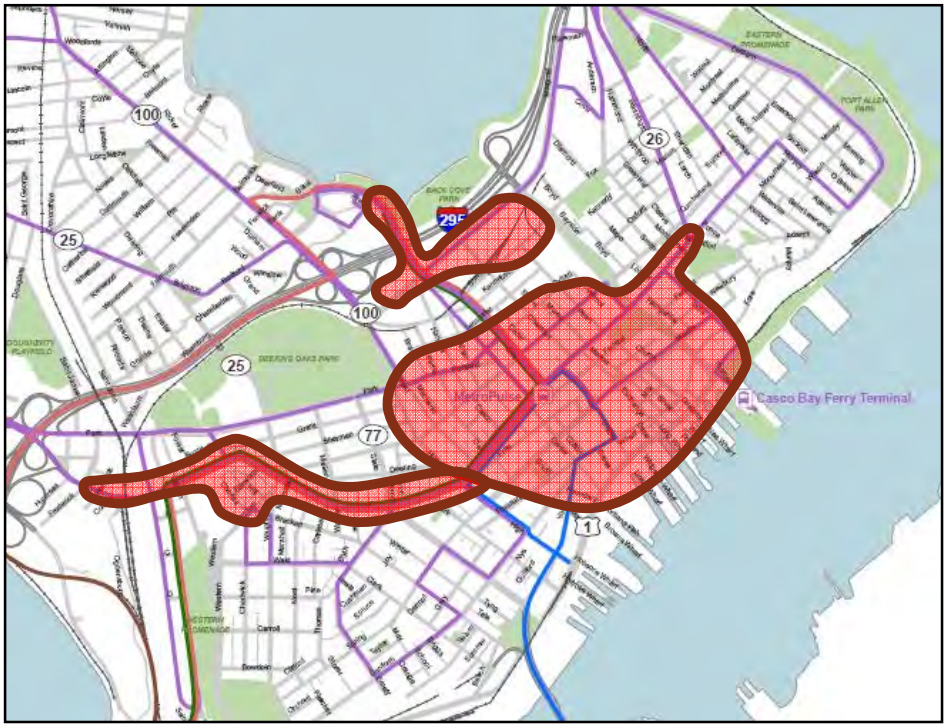
Zoning changes should begin immediately. Leased "Park Once Pool" should begin operation as soon as legal structure is established. Signing and wayfinding improvements should occur simultaneously when a plan is established and are independent of zoning or leased pool.

7) Create Commercial Parking Benefit Districts

Create Commercial Parking Benefit Districts (Recommendation 7.2)

The City should implement coordinated parking management policies for its on- and off-street paid parking, using demand-responsive pricing to promote parking goals of 85% occupancy on each block face and in each garage, matching demand with available supply, and promoting turnover of short-term spaces. All surplus revenues beyond operational expenses would be dedicated to the Sustainable Transportation Fund for walking, biking and transit improvements on the peninsula. Paid parking areas should be expanded as necessary to manage commercial parking where only time-limited parking exists today. Suggested boundaries of districts are depicted in Figure 8-1.

Figure 8-1 Suggested Portland Commercial Parking Benefit Districts



A number of operational steps are necessary:

- **Parking Study.** The City should conduct a parking occupancy study of all on- and off-street parking resources in the downtown commercial district to determine actual daily utilization by block face. Counts should be conducted hourly from 8AM until 10PM on a weekday and a Saturday. The results can be used to establish the initial pricing program.
- **Eliminate Time-Limits.** Time-limits on all downtown metered and un-metered spaces should be eliminated or at least extended to the maximum allowable by the existing mechanical equipment.
- **Extend Meter Hours.** In restaurant and shopping districts, on-street parking demand is often higher after the meters shut off at 6PM. In these areas, meter hours should be extended until at least 10PM.

- **Demand-Responsive Pricing.** Hourly rates should be increased on block faces where parking is over 85% occupied. Rates should be decreased where parking utilization is below 75%.
- **Expanded Pricing District.** Install meters or pay stations on un-priced blocks if occupancy exceeds 85%. Where this occurs on residential blocks, allow residents of the block to chose pricing, the existing residential sticker program, or the proposed residential parking benefit district outlined below.
- **Revised Occupancy Permit.** The street occupancy permit fee should be increased to the sum of parking at the most expensive meter for 8 hours. Ultimately, the City should consider replacing this program with rechargeable in-car meters.
- **Increased Ticket Fees.** The maximum parking ticket fee for a meter violation should be increased to be at least the sum of parking at the most expensive meters for 10 hours.
- **Sustainable Transportation Fund.** All parking revenues in excess of the operational and maintenance costs for paid municipal parking should be directed into the Sustainable Transportation Fund or otherwise transparently revealed.

Estimating total revenues with demand-responsive pricing is difficult without a detailed occupancy study. However, a general estimate can be developed based on available occupancy data from the City. Portland's parking meters currently collect $0.75 per hour for 10 hours each day – six das per week. While occupancy is at least 70% in the commercial core, it is not likely that all meters are fully occupied or collecting revenue all day long. Conservatively assuming only 60% occupancy on average, the average daily meter revenue should be approximately $4.50. This is lower but not far out of line with average meter revenues in most similarly-sized cities of $5 per day. With 1,450 meters, Portland's parking meters should produce about $2M per year (assuming a 50-week year after holidays).

Given these assumptions as a baseline, demand-responsive pricing would: extend pay parking to Portland's 4,000 time-limited spaces, extend meter hours in active districts to 10PM, and adjust pricing to match demand. Establishing the right price for on-street parking takes some iteration, however the market price for off-street parking should always be lower since most parkers desire the on-street space in front of their destination, not a hidden space several minutes walk away in a garage. Looking at Portland's average hourly off-street rate of $1.67 and daily rate of $10.64 (see Figure 7-1), on-street rates are far too low. Even if actual off-street revenues are half of the surveyed rates in Figure 7-1 (on account of negotiated long-term leases that subsidize this cost for employees), on-street parking should be at least equal in value, or $0.85 per hour and $5.30 per day.

Applying this very small $0.10 increment in average hourly charges can result in a significant new stream of revenue for the Sustainable Transportation Fund. Assuming occupancy dropped to only 50% at existing meters and never exceeded *40%* in new pricing locations, annual revenues are increase more than 75%, as demonstrated in Figure 8-2.

Again, these revenues are based on an average hourly meter rate of $0.85 (and only $0.43 in areas of new pricing). In practice, rates would vary by block depending on average demand, with appropriate signing to match. Many locations may only warrant $0.25 per hour while others can be over $2.00 per hour where turn-over is high.

Figure 8-2 On-Street Commercial Parking Benefit District Revenues

	Current		Proposed	
	Metered	Time-Limited	Metered	Pay Stations
Spaces	1,449	3,959	1,449	3,959
Rate	$ 0.75	$ -	$ 0.85	$ 0.43
Hours	10	10	14	14
Occupancy	60%	60%	50%	40%
Days	6	6	6	6
Weeks	50	50	50	50
Annual Revenue	$ 1,956,150	$ -	$ 2,586,465	$ 2,859,982
Surplus	---------->			**$ 3,490,297**

Notes: - The proposed hourly rates are an average. Pricing should be in simpler $0.25 increments, depending on local demand.
- The average rate suggested here is likely to be too low if off-street parking facilities collect the surveyed rates in Figure 7-1. On-street prices should be higher than off-street, suggesting that on-street revenues could be double these projections. However, market adjustments in off-street rates may see a realistic rate about 50% higher than those proposed above ($1.25 per hour).

Improved Parking Conveniences

Public reaction to increased parking rates alone is always negative. Portland should *not* increase parking rates without the other recommended operational changes, particularly eliminated time-limits and extended hours. Furthermore, it is highly recommended that Portland invest in new pay station parking technologies to replace on-street meters. The latest pay stations (or "multi-space meters") provide significant benefits to the City and especially to parkers which can easily make the minor cost increases worthwhile, including:

For the Parker:

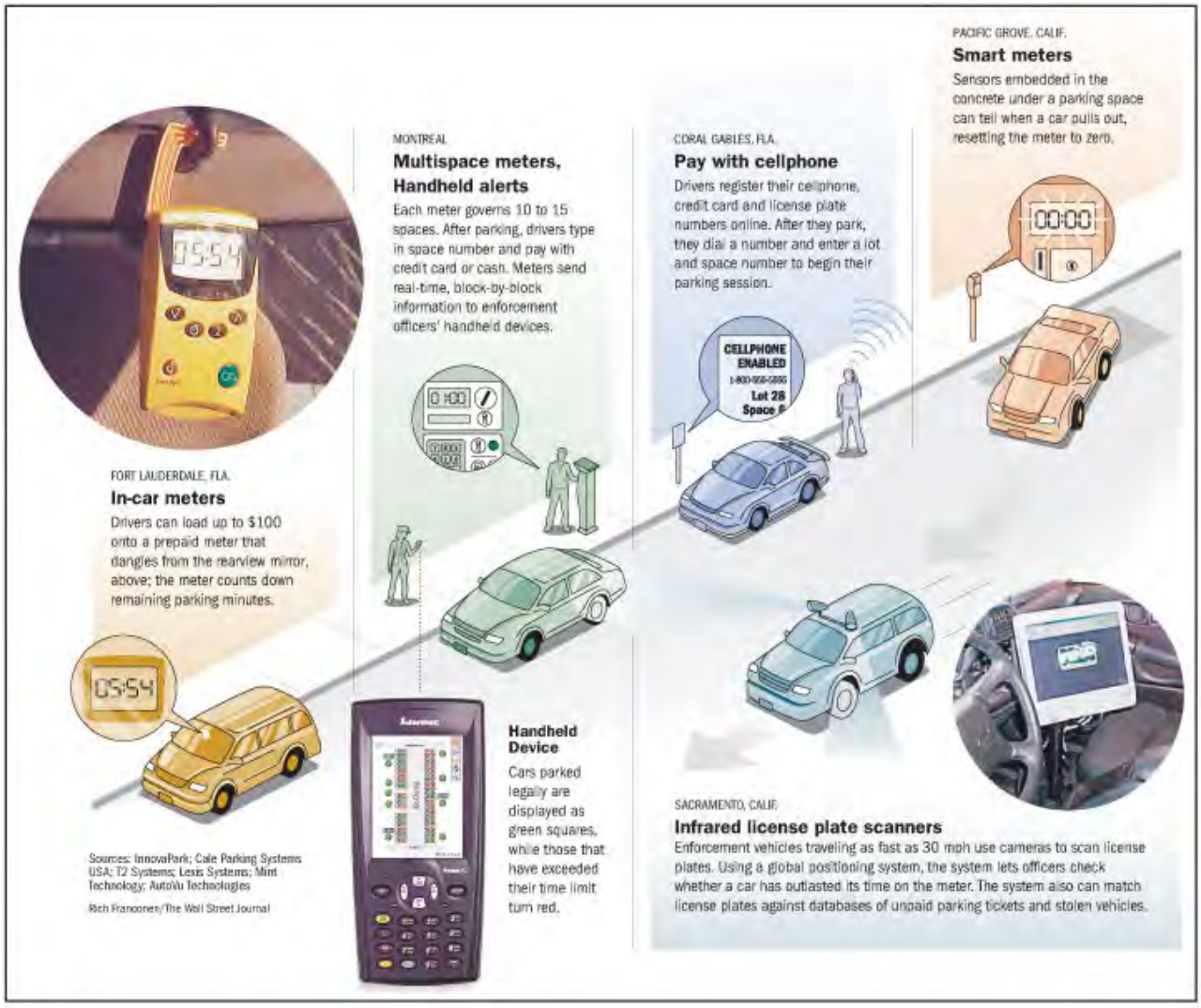
- Highly visible and centralized pay locations with clear published rates, walking maps, transit information, etc.
- Payment with bills or by credit/debit
- Flexible time-limits, with pricing displayed before payment
- Cell phone payment, which enables parkers to avoid the pay station entirely and be notified when time is running out on their space
- Less obstructions and wider effective sidewalk width due to the removal of parking meters

For the City:

- Automatic over-time notification to enforcement personnel's handhelds
- Automatic occupancy and turn-over information
- Reduced revenue collection labor hours as a result of: 1) only one collection location per 10-20 spaces is necessary, and 2) significantly reduced weight, as typically 75% of payments are credit/debit and half of the remaining weight is in paper bills.

Figure 8-3 summarizes these and other similar payment and enforcement technologies

Figure 8-3 Sample Smart Parking Technologies



Source: Wall Street Journal

Responsibility

City of Portland

Cost

– $25,000 for parking study and data collection.

– Additional meters or pay stations typically pay for themselves within 12 months.

\+ Conservatively, the City can raise an additional $3.5M in revenue.

Timeframe

Due to the desire to reduce vehicle traffic, the City must actively support efforts to reduce off-street parking construction. Therefore, it will be essential to have a program that effectively manages on-street parking on the peninsula. All elements of this program can be completed by the Spring of 2009.

8) Offer a "Parking Impact Fee" Program

Offer a "Parking Impact Fee" Program (Recommendation 7.6)

One of the most effective ways to create a financial incentive for new developments to participate directly in TDM and alternative transportation programs is to offer a fee in-lieu of building zoning-required parking. While it may be preferable to simply eliminate minimum parking requirements in the long-term, a "parking impact fee" can create a revenue stream to fund the Sustainable Transportation Fund while demonstrating over time how minimum parking requirements are arbitrary.

The fee should be set to approximately 50% of the cost of constructing a parking space in order to provide an incentive. Likely models include tiering the fee based on total number of spaces required by zoning and annualizing payments over the average life expectancy of a parking structure (35 years). For example, a $1,500 fee plus $500 for each additional space can allow smaller developments to easily participate while providing strong incentive to larger developments that are likely to build structured parking. Using this example, a project requiring only 5 spaces could build zero spaces for a fee of $15,000 ($3,000 per space) or $916 per year for 35 years. A project requiring 50 spaces could build zero for a fee of $712,500 ($14,250 per space) or $43,514 per year (about half of current above-grade garage construction prices). Figure 8-4 demonstrates how the fee schedule may look, including the actual annual payment by number of spaces waived (column I).

Figure 8-4 Sample Parking Impact Fee Table

A	B	C	D	E	F
Number of Spaces	**Per Space Fee Basis**	**Increment**	**Total Fee**	**Average Fee Per Space**	**Required Annual Payment**
	(previous B plus C)		(sum of all B values)	(= D/A)	(D at 5% and 35-year term)
1	$ 2,250	$ 750	$ 2,250	$ 2,250	**$ 137**
2	$ 3,000	$ 750	$ 5,250	$ 2,625	**$ 321**
3	$ 3,750	$ 750	$ 9,000	$ 3,000	**$ 550**
4	$ 4,500	$ 750	$ 13,500	$ 3,375	**$ 824**
5	$ 5,250	$ 750	$ 18,750	$ 3,750	**$ 1,145**
6	$ 6,000	$ 750	$ 24,750	$ 4,125	**$ 1,512**
7	$ 6,750	$ 750	$ 31,500	$ 4,500	**$ 1,924**
8	$ 7,500	$ 750	$ 39,000	$ 4,875	**$ 2,382**
9	$ 8,250	$ 750	$ 47,250	$ 5,250	**$ 2,886**
10	$ 9,000	$ 750	$ 56,250	$ 5,625	**$ 3,435**

Responsibility

City of Portland

Cost

+ Potential revenues are dependent on development approvals

Timeframe

This program should be established as soon as possible to begin creating revenue for the Sustainable Transportation Fund.

9) Establish a Car-Sharing Program

Establish a Car-Sharing Program (Recommendation 7.8)

Car-sharing reduces both household vehicle ownership and the percentage of employees who drive alone because of the need to have a car for errands during the workday. It is an important tool for reducing parking demand, further enabling Portland to reduce future parking construction in return for in-fill development and alternative transportation infrastructure.

While car-sharing programs are typically for-profit private businesses, their enormous public benefit warrants communities encouraging their development. As of this writing, there appear to be two clear paths for Portland to pursue:

- **Option 1 – ZipCar.** The City and key local institutions could formally approach ZipCar with an incentive and initial subscriber package. Initial subscribers would guarantee a minimum level of utilization. Likely candidates are USM, MMC and the City itself. An incentive package would include guarantees that ZipCar could obtain secure accessible off-street spaces for no charge. This would be facilitated by commitments from existing parking operators (including the City) as well as requirements in a TDM ordinance for new development to include spaces for ZipCar. ZipCar has provided services in similarly-sized communities (Hanover NH and New Haven CT) with incentives from key institutional partners (Dartmouth College and Yale University).
- **Option 2 – Independent Car Share.** The City could build upon the existing grass-roots campaign to establish an independent non-profit car-share organization on the peninsula. Some degree of public subsidy may be necessary during initial years of operation. If similar incentives can be provided, this car-share model can work successfully for drivers over 25 years of age. Regional examples of this model include Ithaca Car Share and Philly Car Share.[4]

[4] Other independent car shares in the U.S. are Ann Arbor Community Car Co-op, Roaring Fork Valley Vehicles in Aspen, Austin CarShare, Community Car Share of Bellingham WA, Boulder Carshare, i-go-cars in Chicago, City Wheels in Cleveland, Eugene OR Bio Car Share, Fort Wayne TX Car Co-op, Scoot of Kitsap County WA, Community Car in Madison WI, hOurcar of Minneapolis, and Dancing Rabbit Vehicle Co-op in Missouri. A full national and international list can be found at http://www.carsharing.net/where.html.

Car share pods would ideally be located at USM, the MMC, at the CBIT, near Monument Square, and in residential neighborhoods to begin with. The seasonal demand of Casco Bay travelers matches well with that of USM students, helping to provide a consistent year-round user base.

Responsibility

Partnership of the City, advocacy groups, and institutions such as the Portland Chamber of Commerce, MMC and USM.

Cost

– Approximately $2-3,000 per shared car (assuming the average debt service, maintenance, and operating costs in Figure 7-2)

Timeframe

The City should begin to work actively with peninsula institutions and advocacy groups to develop a car-sharing organization on the peninsula. The attraction of these services is growing strongly in urban markets, especially as fuel prices continue to increase.

10) Implement a Peninsula Park & Ride Facility

Implement a Peninsula Park & Ride Facility (Recommendation 8.3)

The success of the Portland Transportation Center (PTC) is clear, based on the heavy commuter parking demand present most week days (see Figure 8-5 below). It is in the peninsula's best interest to expand parking capacity at and near the PTC to better serve commuters, local businesses, and Portland visitors destined for the peninsula. In coordination with surrounding parking facilities and on-street spaces, this location serves as a key peninsula gateway where vehicle trips may be intercepted.

Figure 8-5 Parking Demand at the PTC

Source: Nelson\Nygaard

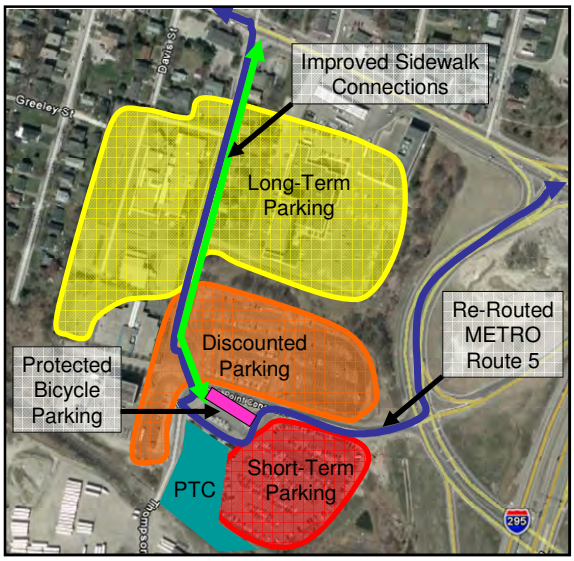
Benefits of improved parking supply and parking management at the PTC include:

- **For employees,** existing shuttle and transit services connect the PTC to the commercial core. The City may be able to coordinate with MMC to create a more predictable and reliable shuttle or regular transit connection between Monument Square and the PTC, serving MMC along the route.
- **For residents,** the PTC can serve as a convenient long-term vehicle parking and transfer center. With frequent transit connections to Monument Square and the waterfront, residents of the peninsula and Casco Bay islands can store vehicles long-term, requiring less parking construction in congested areas, reducing vehicle traffic, and increasing transit utilization.
- **For visitors,** the PTC already connects Portland conveniently with Boston and other cities. Improved bus service to Monument Square and the waterfront can greatly increase the convenience of traveling in to Portland or out to Boston and other cities without a car.

Several implementation steps are needed to make the PTC and surrounding properties work efficiently as an intermodal interceptor station. These are summarized below and depicted in Figure 8-6.

- Begin implementing a parking charge for all PTC parking, including on-street spaces, with rates highest close to the station, decreasing as walk distances increase.
- Modify time limits to be no lower than two weeks. This will prevent excessive vehicle storage yet enable residents to travel long-distance by transit.
- Coordinate with surrounding land owners to provide a similar parking program. If necessary, the City should offer to lease portions of private facilities in return for operational control of those spaces.
- Any surplus parking revenues should be dedicated to PTC improvements, including:
  - Connecting Sewall Street to the PTC access road (at least for buses only) to provide more direct METRO routing.
  - Integrating METRO service directly to the PTC front door drop-off area.
  - Eliminating some short-term parking in the drop-off area to ensure efficient drop-off operations and METRO service.
  - Installing new pedestrian wayfinding signs to Congress Street and improved sidewalks along Sewall Street.
  - Expanding bicycle parking significantly, with protection from rain in a well-lit secure location (possibly where short-term parking is removed).

Figure 8-6 Suggested Expanded Portland Transportation Center



Responsibility

City of Portland in coordination with the Maine Turnpike Authority, Maine Department of Transportation, METRO, Concord Trailways, Amtrak, nearby businesses, and MMC.

Cost

– $150,000 for new parking revenue control systems & pay stations

– $100,000 for new sidewalk, curb cuts, and bicycle parking

– $75,000 per year for possible private lease payments

\+ Potential revenue, assuming $2 per space per day for 300 short-term spaces; $1 per day per space for 300 discounted spaces; and $0.50 per space per day for 300 long-term spaces: $225,000 at 85% utilization, 5 days per week.

11) Pursue Off-Peninsula Park & Ride Expansions

Pursue Off-Peninsula Park & Ride Expansions (Recommendation 6.10)

Portland should build upon the proven success of commuter bus services, especially the ZOOM Turnpike Express. ZOOM removes several hundred cars from the peninsula's streets today, but its capacity is limited by its park & ride lots at Exits 32 and 36 of the Maine Turnpike, which are at capacity. The City should actively coordinate with the Turnpike and neighboring communities to expand existing and new park & ride locations so that ZOOM service may expand.

Debt service costs to physically expand or lease additional spaces can be offset by parking charges. Ideally, a portion of parking revenues would be dedicated to the host communities for needed area improvements. The Turnpike should encourage adjacent service development for

commuters, such as convenience retail, dry cleaners, and flower shops, increasing local tax revenues to further benefit host communities.

Responsibility

City of Portland in coordination with ShuttleBus/ZOOM, the Maine Turnpike Authority and participating municipalities.

Cost

N/A. Any expansions should be revenue neutral due to increased ridership resulting from reduced ShuttleBus/ZOOM fares that are off-set by new daily parking fees.

Timeframe

The City should work to encourage expansions of park & ride facilities as soon as possible. Today, their capacity is the only limiting factor to the expansion of ZOOM Turnpike Express services.

Transit System Improvements

12) Marketing

Marketing (Recommendations 6.1-6.5; 8.4)

The City of Portland and its transit providers should begin marketing all transit resources in Portland as a single system to show the richness of the transit network in and through the region. As described in Chapter 6, a number of efforts should begin as soon as possible, including posting of transit information **(Recommendation 6.1)**, providing customized bus stop information **(Recommendation 6.2)**, creating a consolidated system map **(Recommendation 6.3)** and website **(Recommendation 6.4)**, and promoting the transit systems as a whole **(Recommendation 6.5)**.

To further support the image and visibility of Portland transit, a branding strategy should be developed that ideally serves all Portland transit providers **(Recommendation 8.4)**. A consistent logo, text and color scheme applied across the system will help identify services easily to new riders. The brand should be

Responsibility

A transit information committee comprising representatives of GPCOG, the Portland Chamber of Commerce, METRO, South Portland Bus, Casco Bay Ferries, Zoom Turnpike Express, Concord Trailways, Amtrak, etc. should be established by the City to develop a low-cost marketing program agreement.

Cost

- $15,000 for a consolidated user-friendly map
- $15,000 to develop a centralized website
- $50,000 to purchase and post at least 20 transit information panels on the peninsula and in other key intermodal locations
- $25,000 to purchase and post at least 20 stop-specific transit information panels

Timeframe

The City and METRO should pursue grant opportunities immediately. Providing better information is a critical first step towards increasing transit utilization.

13) Improved Transit Amenities

Improved Transit Amenities (Recommendation 6.6)

A basic transit stop improvement program can be undertaken by the City in coordination with METRO and South Portland Bus. As part of the City's normal pavement marking budget, key bus stops with higher boarding counts should be added to the regular pavement marking cycle to receive additional attention and improved markings, such as international standard crosswalks and bus box markings. The City also should ensure that new pedestrian wayfinding signs are installed close to bus stops, and on-going bike rack installations should also target bus stop locations.

Responsibility

City of Portland, Public Works Department

Cost

- Potentially no additional costs for transit amenity markings, wayfinding signs, and bike racks if existing budgets are re-prioritized. Unit costs will vary by location, but total cost for improving 20 stops could be less than $20,000.

Timeframe

METRO should provide the City with 20 key peninsula stop locations, and the City should begin planning to incorporate these locations into their spring 2009 pavement markings, signing, and bike rack programs.

14) Providing Community Transit Services

Providing Community Transit Services (Recommendation 6.7)

The provision of transit service on the peninsula has evolved over the course of the past 30 years, resulting in an imbalance between fixed-route and paratransit service. The City should take the following steps to rationalize its limited transit dollars to improve service for all transit riders:

- Obtain usage data from RTP and METRO. Evaluate each service according to the per hour cost of operation of one vehicle separate from fare revenues and ridership. After a careful evaluation, develop a preferred operating program for serving regular and mobility-impaired riders, then begin discussions with RTP and METRO to determine how to meet the needs of the city's key higher-density buildings and developments.
- Regardless of the outcome of RTP, METRO and City collaboration, the success of Route 8 as a "community bus service" is clear, and this model should be retained and improved. A formal change to a "deviated fixed-route" service is recommended to improve service quality and responsiveness while reducing operating costs.

Responsibility

City of Portland, METRO and RTP

Cost

N/A. The goal should be to reassign service using existing sources.

Timeframe

The City should collect data and initiate discussions immediately.

15) METRO and South Portland Bus Route Changes

METRO and South Portland Bus Route Changes (Recommendation 6.11)

METRO has already begun public hearings to revise Routes 1, 5 and 8. It is possible that South Portland Bus routes could be changed to overlap METRO service if service time on the peninsula is not lost. Therefore, it is recommended that the City continue to work with METRO and South Portland Bus to advance the planned immediate-term route changes described in Chapter 6, including:

- Revising Route 8 to directly serve the Eastern Waterfront from Congress Street, continuing to Bayside and the PTC.
- Adjusting all METRO route schedules to operate with consistent 15, 30 and 60-minute headways with staggered schedules where routes overlap on the same street. Departures from Monument Square stops should occur on 5-minute clock increments.
- Running Route 1 later in the evening.
- Adjusting the routing of South Portland Bus Routes 1 & 4 to deliver northbound service on Congress at least from High to Union Streets, continuing to the waterfront, and returning

along Congress southbound. Schedules should be adjusted so that Monument Square departures are staggered with METRO service.

Responsibility

City of Portland, METRO and South Portland Bus

Cost

N/A

Timeframe

METRO and South Portland Bus should attempt to make these route changes as soon as possible.

16) Congress Street Bus Priority Corridor

Congress Street Bus Priority Corridor (Recommendation 6.12)

In order to help METRO and South Portland Bus improve operations on the majority of their peninsula services, the City of Portland should undertake efforts to implement a transit priority corridor on Congress Street. Congress Street serves the downtown portion of all METRO and South Portland Bus routes, however traffic operations on this congested commercial street often result in significant service delays and poor operating speeds. While the recommended departure staggering will help to avoid the current problem of bunching buses, further action is necessary to improve transit speed.

Implementing a transit priority corridor on Congress Street is relatively simple considering the possible transit service improvement. The corridor should extend at a minimum from High Street to Pearl Street. Ideally, it would extend at least between State and Franklin. The following steps are recommended for installing the design featured in Chapter 6:

- **Final Design.** The features and dimensions depicted in Chapter 6 are based on GIS files, not actual curb dimensions. While the proposed design does not require new travel lanes on Congress Street, a reliable design for the corridor is recommended. A traffic modeling exercise is advisable but not necessary if changes are implemented incrementally as outlined below.
- **Education Program.** Before any changes are made, a public outreach campaign should be developed and conducted for 30-60 days before changes are installed. The final design should be published in newspapers and on the City's website, and at least one public hearing should be conducted. Banners and other notices should be placed on Congress Street to advertise the change, and a clear set of Frequently Asked Questions distributed. In the last week before implementation, variable message signs should be placed along the corridor advising drivers of the upcoming change.
- **Counting Program.** Hourly weekday and weekend roadway volume counts should be conducted for 48-hour periods on Congress, Cumberland, Spring, State, High and Franklin at a minimum before and after implementation to evaluate the corridor's effect on

traffic. Peak hour turning movement counts are also recommended at key intersections along Congress, Cumberland and Spring.

- **Signing Program.** A clear signing program should be developed that advises motorists of the new operations on Congress Street and that directs motorists to alternate routes in advance. Traffic approaching downtown from Park, Forest, Preble, Franklin and Washington should encounter downtown directional signing that guides them to Cumberland Street. Traffic approaching from Danforth, Commercial, and the Casco Bay Bridge should be directed to Spring Street. Drivers on Congress Street from the north would be diverted to Cumberland at Franklin, and drivers from the south would be diverted to Spring at State.

  Regulatory signs along Congress would prohibit left-turns onto and from the corridor (except buses). These may be implemented sequentially in a phased manner to test the effect of each, though it is recommended that all restrictions are implemented at once. A sequential implementation would require repeated education efforts and adjustments.

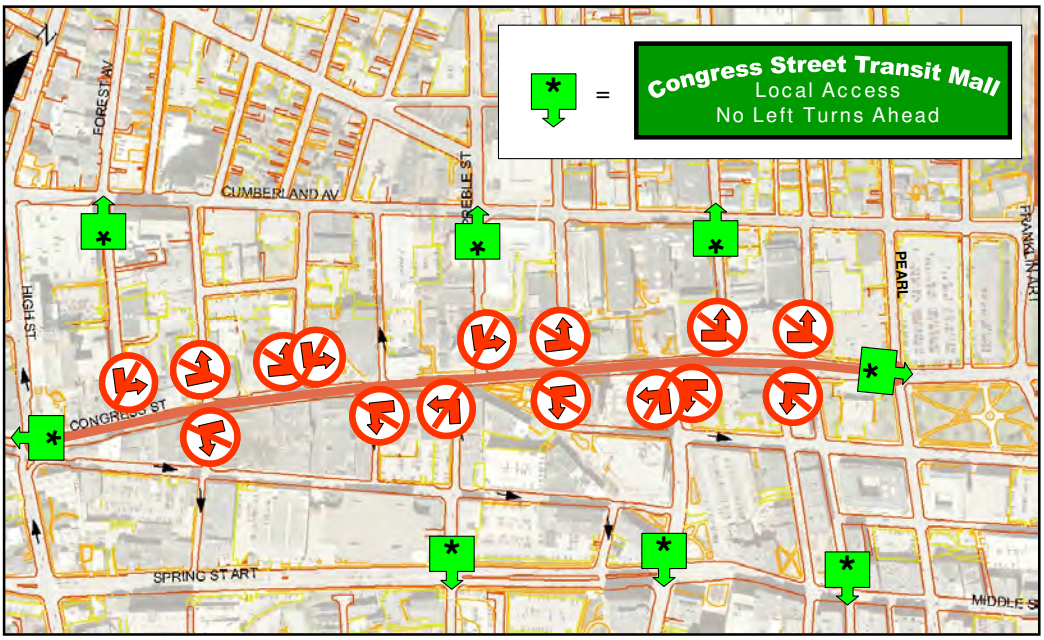
  "All Traffic Must Turn Right" regulations would be posted at each street where a right-turn is possible. This regulation can be reinforced by right-turn arrow pavement markings. Again, this measure may be phased in, though a new education effort would be necessary.

  Figure 8-7 depicts a suggested signing program.

- **Relocated Bus Stops.** Any bus stop that is currently in a curb lane should be relocated to the travel lane at the nearest curb extension, allowing buses to stop without merging into traffic after boardings occur. Fortunately most if not all stops along the recommended transit priority segment are close to a curb extension. All signing should be relocated and any easily-moved shelters should be relocated.
- **New On-Street Parking.** New parking stalls should be painted and metered where bus stops are relocated to the travel lane.
- **Pavement Markings.** New edge lines to define travel and parking lanes should be marked, bicycle boulevard markings should be added between each intersection, and international standard crosswalks should be installed at all existing crossings.
- **Signal Changes.** Existing signals at "T" intersections can be modified to account for the new "No Left Turn" regulations. Locations include the signals at Forest, Preble, Elm and Temple. Since only buses can make left turns, these signals are not necessary for general purpose traffic, unless heavy right-turn movements occur or conflict with crossing pedestrians.

  Initially, all signals can be put into "flash" mode, with pedestrian indications disabled. This will encourage Congress Street motorists to yield as necessary to pedestrians and entering right-turning cars or left-turning buses. If better protection for left-turning buses or pedestrians is needed, the signals can remain operational, but their cycle lengths should be reduced to no more than 90 seconds with the minor street phase reduced to the minimum needed for an acceptable pedestrian crossing delay. The signals should be coordinated to assist progression on Congress Street.

Figure 8-7 Suggested Congress Street Transit Priority Corridor Signing



Responsibility

City of Portland in coordination with METRO and South Portland Bus

Cost

- $10,000 for a detailed design
- $5,000 for flyers and banners
- $8,000 for counting program
- $15,000 for signs

Stop relocations, markings and signal changes can be conducted through existing City staff or contracts.

Timeframe

The entire design, counting, outreach and implementation of this recommendation can be complete by the summer of 2009.

Walking and Biking Strategies

17) New Pedestrian Programs

New Pedestrian Programs (Recommendations 5.1-5.5 and 8.6)

As described in Chapter 5, the City of Portland should establish a pedestrian prioritization program, including new "Feet First" development requirements **(Recommendation 5.1),** a pedestrian signalization program **(Recommendation 5.2),** a citywide "No Turn on Red" policy **(Recommendation 5.3),** the pedestrian wayfinding system **(Recommendation 5.4),** and new international standard crosswalk markings **(Recommendation 5.5).**

The City should also begin a targeting snow clearance effort **(Recommendation 8.6)** during winter months for pedestrian walkways, bus stops and especially curb ramps that get blocked by snow from plows.

Responsibility

City of Portland, Public Works and Planning Departments

Cost

– Possibly the cost of additional part-time staff to clear sidewalks and curb ramps in the winter ($40,000 per year).

Timeframe

All of these programs can be implemented immediately.

18) Congress & High Improvements

Congress & High Improvements (Recommendation 5.6)

The simplification of the Congress Square intersection can greatly improve pedestrian safety at a critical connection between Congress Street shopping districts, reducing the perceived barrier of High Street. The suggested design will need to be developed in greater engineered detail. However, the resulting design should have a goal of moving the Free Street approach away from the intersection of Congress and High to simplify intersection operations. With this as the focus, it is likely that only the northeast corner of the intersection needs to be reconstructed, helping to reduce overall cost.

Responsibility

City of Portland

Cost

– $50,000 for curbs, sidewalk, brickwork

Timeframe

Design and construction can be completed by the summer of 2009. This improvement is an important part of improving pedestrian conditions along Congress Street and can serve as a clear visual element complimenting the transit priority corridor.

19) Forest & I-295 Evaluation

Forest & I-295 Evaluation (Recommendation 5.7)

The City of Portland should take an active position on a preferred approach to Maine DOT's evaluation of the Forest & I-295 interchange. The City's priority for all modes of transportation should be simplifying intersection operations to increase pedestrian safety, encourage other modes of transportation, and reduce vehicle demand at this location. While a simple diamond interchange is the most pedestrian-friendly solution for this location, the City should emphasize the operational goals over a specific design until clear alternatives are established by the DOT.

Responsibility

City of Portland and Maine DOT

Cost

N/A

Timeframe

Expanded discussions should begin as soon as possible to integrate with the on-going I-295 redesign effort.

20) Pedestrian Crossing Improvements

Pedestrian Crossing Improvements (Recommendations 5.8-5.9)

In conjunction with new pedestrian programs, the City of Portland should prioritize the installation of improved crosswalks on larger roads **(Recommendation 5.8)** and key pedestrian signal improvements as identified in Chapter 5 **(Recommendation 5.9).**

Responsibility

City of Portland

Cost

– Up to $10,000

Timeframe

The City should endeavor to complete these priority improvements before the end of this upcoming construction season. These improvements are some of the more visible and cost-effective changes that the City can implement in response to the recommendations of this study.

21) Bike Rack Design Guidelines

Bike Rack Design Guidelines (Recommendation 5.14)

The City of Portland should adopt a clear set of bicycle parking guidelines and include referring language in Portland's zoning and development regulations. Bicycle parking should receive no less attention than regular vehicle parking

Responsibility

City of Portland

Cost

N/A

Timeframe

This recommendation should be implemented as soon as possible.

22) Priority Biking Improvements

Priority Biking Improvements (Recommendations 5.15-5.16)

The planned Deering Avenue bicycle lanes should be extended along Park and Cumberland Avenues, and other facilities should be considered **(Recommendation 5.15)**. Bicycle boulevards should be installed on the streets recommended in Chapter 5 **(Recommendation 5.16)**.

Responsibility

City of Portland

Cost

– $10,000

Timeframe

All of these facilities could be installed before the end of the 2008 pavement marking season.

Short Term Actions (within 5 years)

Parking and Transportation Demand Management

23) Expand Park & Ride at the PTC

Expand Park & Ride at the PTC (Recommendation 8.5)

Given immediate-term changes in parking operations at – and in the immediate vicinity of – the PTC, this location becomes an increasingly valuable remote parking location for peninsula employers, such as the MMC. If parking utilization remains high at the PTC and parking revenues cover all parking operating costs, the City may seek to expand the facility by building a parking structure. Key private partners should help finance the structure, especially if the City can help employers avoid other costs, such as constructing more expensive underground parking on-site, leasing more expensive downtown parking, or providing shuttles from remote lots (such as MMC's system of park & ride shuttles). With dedicated METRO service to the peninsula, the PTC can expand its market as a vehicle trip interceptor.

However, even with the most inexpensive parking deck construction, a new 600-car deck would cost over $9M. This would require a daily fee of at least $4 to cover debt service and operations, which may not be achievable in this location. Therefore, a careful cost-benefit analysis should be conducted before proceeding with this recommendation.

Responsibility

City of Portland, transit providers, and private partners

Cost

– $600,000 per year

Timeframe

Discussions with key employers (particularly the MMC) should begin as soon as possible. It is possible that the cost-effectiveness of this facility sufficiently outweighs other options for a private partner to heavily finance the structure, allowing realistic user charges of under $4 per day.

Transit Strategies

24) METRO Route Changes

METRO Route Changes (Recommendation 6.11)

METRO should advance the additional route and schedule changes recommended in Chapter 6, including:

- Provide consistent 15-minute or less frequencies on key peninsula route segments by overlapping routes and staggering departures.

  - Routes 2, 4 and possibly 3 would be re-routed to run along Forest Avenue from Woodford's Corner to Preble Extension and the Preble/Elm pair.
  - Routes 5, 6 and 7 would be re-routed to run on Congress and connected as continuous through service (interlined) as a single route.
- Adjust off-peninsula ends of existing routes to be able to extend service on the peninsula.
  - Routes 2, 4 and possibly 3 would be evaluated for route reductions at their western ends to provide approximately 5 more minutes of time to extend their eastern end from the Elm Street hub to Commercial Street at the Eastern Waterfront.
  - Routes 5, 6 and 7 would be evaluated for route reductions at their distant ends to increase reliability once they become interlined.
- Maintain Route 1 service and stagger with other services on Congress Street or interline with Route 5.

It is not anticipated that the necessary end-of-line changes can occur quickly, but it is in METRO's best interest to begin pursuing these changes. These changes also are supported by the City's transit priority corridors.

Responsibility

METRO

Cost

N/A

Timeframe

Determining specific routes and vetting each through a public process will take at least one to two years.

25) Cross-Peninsula Transit Priority Corridor

Cross-Peninsula Transit Priority Corridor (Recommendation 6.12)

Establishing a cross-peninsula transit priority corridor is an essential part of providing quality transit service to new development in Bayside and along the Eastern Waterfront. It also serves to provide peninsula residents with access to Hannaford's, while giving off-peninsula residents a strong incentive to use transit as opposed to traveling the congested Forest Avenue corridor by car. Running along Forest Avenue, Preble Extension, and Preble/Elm between Woodford's Corner, Bayside and Monument Square, then extending along Franklin, Pearl or Union between Monument Square and the Eastern Waterfront, this corridor breaks through the barrier of transfers at the Elm Street Hub for a large number of riders. It also brings a clear new service to existing Casco Bay residents.

Absent any of the implementation steps outlined below, cross-peninsula service should be a priority of METRO's route planning as soon as possible. Consolidating parallel services onto one spine and extending it to the waterfront will greatly enhance the appeal of transit even without

transit priority features. However, these features will help ensure that METRO can provide predictable headways while possibly decreasing travel times.

To implement the corridor concept shown in Chapter 6, a number of elements must be coordinated:

- **Improved Bus Stops.** Existing stops on the corridor should be the target of basic bus stop improvements, including information panels, shelters, lighting, benches, bus box markings, and new crosswalks.

Forest Avenue

- **Queue Jumping.** With the installation of transponders on METRO equipment, the signals at Woodford's Corner and Preble Extension can be upgraded to allow buses to jump queues from a curb lane pocket. Equipment costs are low compared to bricks and mortar improvements.
- **Reversible Lanes.** Reversible lanes on Forest will greatly benefit bus and general purpose traffic during peak hours, but daily lane shifting would require high labor costs. However, the concept has worked successfully in other cities and should be explored seriously if cross-peninsula transit service is impacted significantly by delays in this portion of the corridor.

Preble Extension, Preble & Elm

- **Bus Lanes.** Vehicle volumes on Preble Extension do not necessitate the 4-lane facility that exists. The City should take advantage of the current spare capacity to designate the curb lanes as bus lanes for re-routed METRO service. Similarly, spare capacity also exists on the Preble and Elm pair to replace a travel lane with a bus lane. All bus lanes should be clearly marked and signed. On-going enforcement of lane violations will be important to maintain strong transit service. (It should be noted that each of these segments has sufficient cross-section for bike lanes to be installed as well.)

Waterfront

- **CBIT Terminus.** The preferred routing between Monument Square and the waterfront is not clear, but all streets except Franklin Arterial are too narrow for bus lanes or queue jumpers. Regardless of the final routing, a clear terminus should be provided adjacent to the CBIT. If buses bound for the waterfront must use city streets to loop back, their eastern terminus should be on the water-side of Commercial. This terminus could also be provided in the ferry terminal's driveway, with an on-dock turn-around in front of the ocean terminal. As development of the Eastern Waterfront occurs, it may be desirable to move this terminus north if services can be extended further, but a stop at the CBIT should be retained. The terminus should also be planned to integrate with future streetcar or light rail service.

Responsibility

City of Portland in coordination with METRO and South Portland Bus

Cost

– $50,000 for bus stop improvements.

– $40,000 for bus and bike lane markings.

– $75,000 for queue jumping equipment on buses and two intersections.

Undetermined annual cost for reversible lanes.

Timeframe

Planning for this corridor should begin as soon as possible. Due to the relative simplicity of improvements, timing is more dependent on METRO's route changes for utilizing the corridor.

26) Real-Time Arrival Information

Real-Time Arrival Information (Recommendation 6-13)

In coordination with the City, METRO should seek to provide real-time bus arrival information. While predictive information that is available on call-in systems or on variable message signs at bus stops is expensive to implement, initial planning for these systems should begin. In the meantime, real-time locational services, such as TransLoc, should be introduced.

Responsibility

METRO and City (optionally South Portland Bus Service)

Cost

– $400,000 for basic installation

– $100,000 annually to maintain service

Timeframe

The City should begin working with METRO (and possibly South Portland Bus Service) to develop a strategy for implementing an interim and long-term real-time arrival service.

27) Expand Universal Transit Pass Offerings

Expand Universal Transit Pass Offerings (Recommendation 7.4)

Portland's transit providers should work to develop a bulk payment plan for institutions, employers and large residential developments to purchase an unlimited transit pass for the METRO, South Portland, ShuttleBus/ZOOM and Casco Bay systems. This will put transit at the fingertips of peninsula commuters, greatly increasing transit's attractiveness.

The bulk fees are usually negotiated annually with the transit provider but typically are based on absolute number of participants paying a substantially reduced per person fee for an average trip rate, such as one quarter of the cost of providing two rides per person per day. Successful universal pass program fees are based on actual utilization, which typically represent better fare recovery for transit providers. However, this data requires providers to have on-board electronic fare payment equipment.

Responsibility

METRO, South Portland Bus, ShuttleBus/ZOOM, and CBITD

Cost

N/A

Timeframe

The City should encourage representatives of each service to begin development of a joint universal pass program as soon as possible.

Walking and Biking Strategies

28) Safety and Access Improvements

Safety and Access Improvements (Recommendations 5.10-5.11)

The safety improvements **(Recommendation 5.10)** and access improvements **(Recommendation 5.11)** identified in Chapter 5 should be given priority for future infrastructure repairs in Portland. The majority of the recommended locations require sidewalk and wheelchair ramp work plus the installation of new curb extensions or crossing islands. Many would require adjustment or installation of underground drainage structures. Nonetheless, the public forum has given the City a convenient tool to select future project work, and every effort should be made to address the entire list of recommendations.

Responsibility

City of Portland (or new development where applicable)

Cost

– Varies by location (generally $500 - $15,000 per location)

Timeframe

While improving all recommended locations immediately would be preferable, limited resources necessitate placing most improvements in annual repair budgets, unless the Sustainable Transportation Fund becomes well-funded.

29) Bicycle Rack Program

Bicycle Rack Program (Recommendation 8.5)

A very successful method of expanding bicycle parking locations is for communities to offer an amenity program where businesses can purchase a post & ring short-term bicycle rack at the bulk rate a municipality would pay (usually up to a 20% discount), and the community installs the rack for no charge. This program gives businesses a sense of ownership of public infrastructure while removing the complexity and hurdle of identifying an equipment provider, installer and necessary construction permits.

Responsibility

City of Portland

Cost

N/A

Timeframe

This offering can be integrated into the City's existing bike parking program immediately.

30) Bike Stations

Bike Stations (Recommendation 5.19)

Bike stations greatly increase the accessibility of biking to non-bikers. By providing dedicated conveniences, easy storage, education, easy repair services and/or bike rentals, bike stations or similar amenities have been demonstrated to greatly increase bicycle mode shares by eliminating some of the more complex issues that discourage many from biking. Bike stations also can form the basis for a shared bicycle system in the future.

Rent and operating costs are the biggest hurdles to successfully implementing a bike station. However, the City may be able to identify key private partners that can provide some or all of these amenities for lowered costs. A key pilot partner would be the MMC.

Responsibility

City of Portland

Cost

– Up to $150,000 per year to operate

Timeframe

The City should begin searching for likely locations and private partners.

Additional Actions

There are a number of other possible measures the City should start considering soon. However, these measures are more dramatic and may warrant implementation in the long-term.

Parking and Transportation Demand Management

- Implement a "traffic congestion impact fee" for all new development, based on downtown development projects' proposed number of parking spaces and/or estimated peak-hour vehicle trips. Use impact fee revenues to fund the STF. Pursue a nexus study to determine most appropriate assessment methodology and fee structure.
- Require employers to provide Universal Transit Passes to all new and existing downtown employees as part of TMA membership.
- As a condition of approval for new downtown development, require provision of Universal Transit Passes to all new residents, funded through condominium homeowner association (HOA) fees or rents. Provide free or deeply-discounted passes for existing residents, funded by the STF.
- If total downtown parking demand cannot be met with existing supply after the above recommendations have been fully implemented, build new public shared parking as needed to maintain 85-percent utilization of the entire supply.

Transit System

- Consider signal priority for and other operational enhancements on all streets with combined service of at least 10 minutes during peak periods.
- Incorporate real-time information in all higher boarding bus shelters using Next Bus or other technology.
- Change the vehicle used by all transit providers to a hybrid bus or other unique vehicle.
- Increase METRO and South Portland Bus frequency to at least every 10 minutes.
- Install electronic fare collection equipment on all transit vehicles.
- Begin a harbor water shuttle to South Portland from CBIT.
- Create BRT service along Forest Avenue Corridor.
- Create BRT service along Route 6 & 7 corridor to the northwest.
- Initiate fixed-guideway trolley service along Commercial Street waterfront.
- Initiate fixed-guideway light-rail service from points north to the Eastern Waterfront, continuing across the peninsula through Bayside to the PTC and on to points west/south.

Walking and Biking Networks

- Continue the promenade multi-use path around to Bayside
- Traffic calm Park Avenue
- Explore conversion of State and High to two-way streets
- Reconfigure Franklin Arterial as a multi-way boulevard with a median preserved for a future light-rail alignment
- Add multi-use connections across I-295

APPENDIX A

EXISTING PLANNING DOCUMENTS

Appendix A. Existing Planning Documents

Time of Change: Portland Transportation Plan
Date: July 1993
Author: Market Decisions
Document Description: Tackles the concept of car-dependency by addressing land use-transportation connections, good design, walkable neighborhoods and non-SOV modes, the environment and energy conservation, integrated modes and having a well-structured system.
Key elements: • Consider the transportation system as a series of interconnected modes • Increase non-SOV mode share • Consortium of transit agencies (see the Coordinated Plan below—this never did really happen) • Bring commuter rail on the peninsula • Basic bike network in place within 5 years • Intermodal regional transport centers • Traffic calming and diversion of through-traffic from residential neighborhoods • Neighborhood streets as multipurpose public spaces • Diverse, compact land use patterns • Seven pilot projects to test transportation concepts in the city **Concerns about transit:** • Public transit has lost ground • Systems are uncoordinated, not seamless
Relevant Recommendations: • METRO to connect to all park and rides • METRO should be considered for middle and high school bus service • Commuter express bus to suburbs • Commuter rail service should be explored on existing rail lines
Maps: Figure V-6: Possible public transit center locations Figure VI-4: Regional transport centers

A New Vision for Bayside, Book 1

Date: April 2000

Author: Bayside Taskforce

Document Description: Bayside is a brownfield and is ripe for redevelopment. It is a key gateway to Portland, but is currently considered an eyesore and used as a back door. Book 1: The Plan defines the vision that shapes the Bayside Plan, resulting in a list of action items. Book 2: Implementing the Plan contains five issue papers that list strategies for implementing the action items.

Development Principles:

- Bayside will be an attractive urban gateway & extension of downtown.
- Its location between downtown and I-295 offer a significant economic and market opportunity to be planned and managed to create the best value for development and quality of life improvements for the community, generate a broad range of employment opportunities and improve the tax base.
- Bayside will contain housing workplaces, services, transportation, recreation, dining and shopping within comfortable walking distance o each other and downtown.
- The plan will fill in, extend and enhance the existing residential fabric with new housing units affordable to many income levels.
- Transit-oriented development will include mixed use, compact and intensive land development, served by quick and convenient transit service.
- The plan calls for ample parking to serve the needs of residents, visitors and workforce. Strategically located parking structures will serve multiple functions, connect with transit, facilitate traffic flow with minimal impact on neighborhood residents, and avoid extensive land consumption by surface parking lots. Five garages with an average of 600 parking spaces, totaling 3,000 spaces.
- Other principles address Bayside as a neighborhood center, recreation and open space, a social service resource network, environmental remediation and scrap yard redevelopment.

Recommendations:

- Critical Action 1: Acquire the railroad property
- Critical Action 2: Redevelop the scrap yard parcels
- Critical Action 3: Build more housing
  - Goal: To create a healthy mixed-income neighborhood with new rental and owner-occupied dwellings in a variety of sizes and types, replacing housing units lot of the past 40 years. Bayside can become a model for countering sprawl. 800 new units within 25 years (including 300 by 2005)
  - City contribution: $15,000 to $20,000 per unit, not including parking structure
- Critical Action 4: Create TOD
  - Goal: To provide safe, efficient and conveniently located parking to serve many uses in Bayside, such as office, retail and residential development. To provide pedestrians, bus riders and auto drivers a balanced transportation network in Bayside that is linked to other neighborhoods and transportation service centers.
  - Implementation tasks:
    - Conduct a parking study
    - Coordinate planning, location, and sequencing of parking facilities
    - Develop a parking management plan
    - Coordinate planning and improvement of transportation-related facilities and services to achieve TOD
    - Identify site for first garage and resources and processes needed to move towards construction
- Critical Action 5: Secure the future of Portland's social service network

Maps:

Bayside implementation plan Page 25

Eastern Waterfront Master Plan
Date: June 3, 2002
Author: City of Portland Planning Office
Document Description: This document contains a review and analysis of proposed and/or desired public and private development projects within the Eastern Waterfront including the Ocean Gateway Passenger Terminal Project and potential related co-development. It also contains a review of land use and economic development policies and opportunities within the Eastern Waterfront. Traffic and parking problems are a major theme.
Purpose: The purpose of this study is to: • Establish a Development and Master Plan for the Eastern Waterfront area that complements, enhances and integrates with the Marine Passenger Terminal Project and the adjacent neighborhood. The Master Plan will provide the policy basis for future zoning amendments necessary to implement the plan. • Insure good urban design by (1) identifying potential public improvements to complement and enhance development in the study area and (2) establishing design guidelines to inform public and private development in the Eastern Waterfront. • Provide the basis for future land-use planning for the rest of Portland's Waterfront. **Goals**: • Design guidelines for new development • Give priority to maritime uses • Use area as opportunity for economic development • Improve waterfront access, upland connections and parking for Island residents
Relevant Recommendations: Parking recommendations: • Consolidate surface parking lots into shared parking • Develop parking structures surrounded by mixed-use buildings • Promote shared parking for abutting uses • Use Casco Bay Island Ferry Terminal parking structure as long-term rented parking for Islanders only (currently half long-term lease, half hourly rental of the 420-space facility) Traffic improvement recommendations: • Street improvements on arterials to keep cruise terminal-generated traffic out of residential areas • Improvements along Rt 295 exchange of Franklin Arterial • Tie traffic improvements to development proposals so it is undertaken on an ongoing basis • Create new streets to improve connections to waterfront

Portland Peninsula Traffic Study
Date: not released (completed in 2004)
Author: Peninsula Traffic Plan Committee
Document Description: The study outlines a plan and recommendations for roadways and vehicle movement, concentrating on physical roadway improvements. Desired result: Detail the goals of a 25-year transportation plan to guide future transportation improvements and city policy. Focus on several areas on the Peninsula: • Redevelopment of Eastern Waterfront, including Ocean Gateway project • Changes to Bayside, including addition of Amtrak service • Reconfiguration of State and High Streets to benefit Deering Oaks • Recommendations for wayfinding signage
Guiding Principles: • Development should be mixed-use & should serve the needs of Peninsula residents. • When roadway changes are made, equal attention should be given to infrastructure in support of pedestrian safety and mobility. • Traffic planning should fully respect end encourage pedestrian, bicycle, transit and other modes of transportation. • Traffic flows should be routed where they will have the least impact on sensitive areas such as neighborhoods and open spaces. • Traffic plans should route future flows to gateway entrances to the Peninsula, complete with attractive and safe entry treatments. • Traffic management techniques should be employed to avoid congestion and minimize the physical affects of increased roadway infrastructure and loss of valuable land. • Adopt appropriate land use changes on streets chosen as high-volume preferred routes. **Objectives:** • Maintain efficient traffic flow, acceptable levels of service, and minimize air pollution. • Change the City's Ordinance so that level of service (LOS) criteria are not necessarily the driving force behind roadway improvements. • Minimize impacts on and traffic through residential neighborhoods. • Serve Downtown, Bayside, Amtrak train station, Ocean Gateway and other on-Peninsula transportation and economic development projects that are traffic generators and employment centers. • Reduce the presence of highway corridors through Deering Oaks and restore State Street as a park entrance from Park Avenue. • Facilitate access to designated destinations by appropriate signage. • Address the I-295 corridor and interchanges, future volumes, and safety issues in a manner consistent with the Bayside Master Plan. • Address capacity issues along arterials.

Findings:

- Cost of improvements
  - Immediate: $415,000
  - Short-term: $13,499,000
  - Long-term: $37,000,000

Origin-Destination Survey

- AM peak volume: 17,043 vehicles. Largest is 19% at both Casco Bay Bridge and Forest Ave.
- PM peak volume: 20,654 vehicles. Largest is 19% at Forest Avenue and 18% at Congress/Park.
- 16,030 vehicles enter, exit, or pass through the Portland Peninsula during AM peak. Most (64%) are vehicles driving to a destination on the peninsula, 30% drive from the peninsula, and 6% drive through. PM peak trips mirror that: 35% enter the peninsula, 59% exit the peninsula, and 6% pass through.
- The proportion of through-trips and local trips varies by portal
- Nearly all through-traffic on the peninsula either enters or exits via Casco Bay Bridge.
- Most through-trips have at least one end in Portland; the largest number of through-trips (48% total) are between Portland and South Portland and between Portland and Cape Elizabeth.
- Most motorists come to the peninsula from Portland (25% in AM peak & 38% in PM).
- Most trips to the peninsula enter at Preble street (25%), Forest Avenue (21%), Congress St (14%), and Deering Avenue (13%).
- The distribution of jurisdiction origins/destinations varies according to the trip origin location on the peninsula.

Recommendations:

Land Use

- Continue to encourage opportunities for the development of additional residential units within the Peninsula rather than dispersed development, to better allow residents to take transit to work.

Parking

- Adopt a parking impact fee for new development.
- Develop remote parking areas away from the Peninsula.
- Promote ridesharing programs.
- Institute fee structure changes to favor short-term parking.
- Develop a shared parking supply on the Peninsula that recognizes the importance of offset demand of parking between office, residential, and recreational uses.

Transit

- Complete a comprehensive transit study to determine what changes should be made to the current system to increase ridership to serve remote parking lots, neighborhoods and adjacent communities. Reduced congestion depends on an optimal mix of safe, convenient, reliable transportation alternatives.

Wayfinding

- General wayfinding improvements:
  - Gateway or entry signs, along major arterial routes into the downtown.
  - Parking signs, keeping with the established character of the wayfinding program, to guide, identify & direct to convenient places for motorists to leave vehicles.

– Pedestrian oriented kiosks (you-are-here maps), at strategic points throughout the downtown area that provide information regarding orientation to, locations of, and information about attractions. – Pedestrian directional signs to supplement the kiosks.
Maps: Figure 4. 2 Through-traffic movements on Casco Bay Bridge Figure 4.3 Portland Peninsula sectors Figure 10.1 Existing wayfinding along I-295 Figure 10.2 Proposed wayfinding routing for Eastern Waterfront Figure 10.3 Proposed wayfinding signage for Eastern Waterfront

Destination Tomorrow, PACTS Regional Transportation Plan
Date: June 2006
Author: Portland Area Comprehensive Transportation Committee
Document Description: The plan defines a transportation vision, goals and objectives for the region and assesses current transportation and land use conditions and future trends. It also evaluates and recommends opportunities to improve the safety, efficiency, and accessibility of the transportation system, then identifies priorities and a funding framework for the region. Three different transportation alternatives were analyzed: Interstate Highway, Arterial Roadway, and Transit.
Goals: • Economic development – Enhance regional prosperity through support for the economic vitality of existing business and for economic development opportunities encouraged by local and regional plans. • Mobility, safety and accessibility – Improve the mobility, safety and accessibility of people throughout the region, and the movement of goods. • Energy conservation – Conserve and efficiently use non-renewable energy resources. • Land use – Support land use plans and development patterns that promote efficient transportation services and systems. • Environmental quality – Protect and improve quality of life and the human and natural environments including natural and cultural resources, air and water quality. • Regional focus – Reflect a regional approach to transportation and land use planning and decision-making founded on effective communication and management of regional resources. **Guiding Policies:** • Maintain and preserve the existing transportation systems as the highest priority. • Make roadway improvements at critical intersections a higher priority than roadway capacity improvements. • Strategically expand the transportation system while continuing to meet current demands. • Avoid building major new highways, to the extent possible, with a preference for adding capacity to existing streets first, where feasible and appropriate.

- Strengthen the link between transportation investments and land use policies, and decisions to preserve public investments and promote efficient land use patterns.
- Implement access management measures to preserve access to land uses, to preserve arterial roadway capacity and to promote safety.
- Enhance, maintain and, where appropriate, expand passenger transportation services to increase their accessibility and attractiveness to a larger number of people.
- Promote community and neighborhood livability and economic redevelopment as a goal of transportation investments.

Findings:

- Significant traffic congestion and safety problems currently exist and will worsen if current development patterns and practices, and current investment trends continue.
- Transportation issues are regional in nature and will require a concerted and coordinated multi-jurisdictional response to resolve.
- The gap between transportation needs and available funding resources is large and is widening.
- There are mixed trends in passenger transportation use and service. Ridership is increasing on inter-city bus, demand-response bus and air transportation services, and after years of decline is also increasing on local bus service.
- Passenger transportation still accounts for a small percentage of all trips made. Many areas in PACTS are not accessible by passenger transportation.
- While important to the regional economy, existing land use development patterns, heavy traffic volumes and the design of many of the region's arterials have negative impacts on adjacent residential neighborhoods.
- Land use development patterns and practices are reinforcing dependency on the automobile for travel in the region.
- Cost of improvements
  Total funding need: $1.024 billion
  Potential funding available: $501 million
  Potential funding shortfall: $523 million

Recommendations:

Issue Paper #5

- Invest in intermodal facilities and maintain inter-terminal links
- Maintain bus transit to connect major employment/activity centers
- Expand commuter bus/rail services to key suburbs
- Encourage TOD
- Support commuter rail to Brunswick
- Improve traveler information systems.

PACTS Regional Transit Coordination Study
Date: May 2007
Author: Greater Portland Council of Governments Southern Maine Regional Planning Commission
Document Description: In order to identify opportunities to increase efficiency of transit operations within Greater Portland and to work toward the development of one regional transportation system, the study: • Assessed existing conditions • Identified potential cost efficiencies and improvements to quality and frequency of service, increased connectivity, and ridership growth for all providers • Emphasized maintaining or improving customer service
Goals: The study's overarching goal is increased public benefit and relevance of public transit through: • Better coordination between providers • Financial savings/better funding • Improved or expanded services • Better connections and transfers • Consolidated planning and marketing • Better accountability • Better coordinated information to customer
Findings: Examples of existing collaboration between Greater Portland area transit providers: • METRO, South Portland, & the ShuttleBus all honor free transfers between services. • METRO and South Portland recently collaborated on a transfer study. • Area providers collaborate on the Federal funding distribution formula, Surface Transportation • Program (STP) transit set-aside funds and several policy issues at the PACTS Transit Committee. • METRO provides maintenance services for a portion of the RTP fleet. • The ShuttleBus provides maintenance services for all YCCAC vehicles. • METRO, South Portland, and RTP collaborate on a Medicaid (Maine Care) bus pass program providing monthly fixed route bus passes to people who document at least three medical visits per month. • METRO and South Portland are offering a Summer Student Pass for $20 that is good for both services. • Maine Mall Transit Center – services stop in the same location at the Maine Mall, where there is transit information and a Transportation Information Display System (TIDS) screen. • METRO, RTP, SPBS and GPCOG are working collaboratively on Automatic Vehicle Location (AVL) and dispatch systems. • VIP Tour and Charter is providing service for the Portland Explorer and the University of Southern Maine. • Transit agencies are collaborating on the redesign of a Portland Downtown Transportation Center at the current METRO Pulse location. • NNEPRA's Downeaster service and Concord Trailways are both located at the

Portland Transportation Center and offer flexible tickets that can be used for either.

- Transit providers provide vehicles to one another during emergencies or unforeseen circumstances in order to prevent disruptions in service.
- With SMRPC, South Portland and BSOOB (ShuttleBus) have commissioned a joint route design study.

Greater Portland transit strengths:

- Large quantity of available service, with substantial route coverage in the communities that are served.
- The region's three principal fixed-route bus programs accept transfers from connecting transit agencies.

Weaknesses in existing service coordination:

- Bus stop locations – Many transfers require passengers to walk between bus stops. Bus stop locations are sometimes not obvious to inexperienced bus riders. The problem stems in part from the large number of bus routes that converge on Monument Square in downtown Portland. METRO has developed a transit hub at the Elm Street Pulse, but this location is not large enough to accommodate all METRO routes, let alone buses operated by South Portland and the BSOOB ShuttleBus.
- Connecting schedule times – Connection times throughout the region are complex and confusing. This is true for connections internal to the METRO and South Portland systems, as well as for transfers between transit agencies. This situation appears to have resulted from routes and schedules that have evolved over many years with marginal adjustments, resulting in complicated routes with awkward and inconsistent headways.
- Limited traveler information – Maps and timetables published by individual transit systems include telephone numbers for other transit programs, but they offer no information about destinations served by these other providers. Regional transit information available on the Internet includes multiple agencies, but information is presented separately for individual programs, with no explanation of how to plan trips that involve more than one transit agency.

Recommendations: (To be completed by Spring 2009.)

Planning:

- Improve and expand transit service by coordinating regional planning activities.

Operations:

- Improve coordination, efficiency and service among existing transit providers by conducting a comprehensive analysis and possible redesign of local transit routes in the region.
- Control expenses and improve efficiency by exploring the coordination and/or consolidation of operational systems.

Marketing:

- Improve ridership, revenues and customer service by promoting a seamless, customer focused, service oriented transit system with coordinated marketing and promotions.

Capital Investment:

- Increase ridership, revenues and customer service by making investments in facilities and infrastructure.

Maps:

Page vi: Passenger Transportation Systems in the PACTS Area

APPENDIX B

FIRST PUBLIC FORUM QUESTIONNAIRE

Appendix B. First Public Forum Questionnaire

The following four modal questionnaires were provided to every participant of the first public forum to be completed sequentially at the end of each respective map mark-up session.

Portland Peninsula Transit Study

TRANSIT Issues

Place 6 dots on the most important item(s) to you.
You may vote for one item more than once,
but you only have 6 votes.

What don't you like about transit in Portland? Why don't you ride transit more?			
No stop near my home:		No stop near my work:	
Buses don't come on schedule:		Not frequent enough:	
Not enough bus shelters:		Too many stops along the way:	
Not enough park and ride parking:		Difficult to transfer between buses or rail:	
Buses are not comfortable/welcoming:		Boarding & exiting buses is difficult:	
No live information on next bus:		Maps and schedules are hard to understand:	
Paying fares takes too long:		Fares are too high:	

Portland Peninsula Transit Study

WALKING Issues

Place 6 dots on the most important item(s) to you.
You may vote for one item more than once,
but you only have 6 votes.

What don't you like about walking on the peninsula? Why don't you walk more?			
Narrow sidewalks:		Sidewalks are poorly maintained:	
Threatened by motorists:		Poor lighting:	
No good snow & rain protection:		Not enough benches:	
Not enough retail shops:		Not enough landscaping:	
Not enough crosswalks:		Not enough signalized crosswalks:	
Too much delay crossing streets:		Cars turning across crosswalks:	
No good directional signing:		Few/poor curb wheelchair ramps:	

Portland Peninsula Transit Study

BIKING Issues

Place 6 dots on the most important item(s) to you.
You may vote for one item more than once,
but you only have 6 votes.

What don't you like about biking on the peninsula? Why don't you bike more?			
Not enough bike lanes:		Cars drive too fast:	
Not enough off-street paths:		More bike lanes on more roads:	
Few bike racks near my destination(s):		Biking on the sidewalk is difficult:	
There is no secure indoor bike parking at my destination(s):		There is not a shower and changing room at work:	
Bike racks on buses are difficult to use:		Few place to rent/borrow a bike:	
Streets/shoulders are not maintained well:		Bike racks do not support my bike well:	
No clear signing to destinations:			

Portland Peninsula Transit Study

DRIVING Issues

Place 6 dots on the most important item(s) to you.
You may vote for one item more than once,
but you only have 6 votes.

If you drive, what makes driving on the peninsula difficult?			
Too much traffic:		Speed limits are too low:	
No on-street spaces near my destination(s):		No garage/lot spaces near my destination(s):	
Can't find an on-street space:		Can't find a garage/lot spaces:	
Metered parking is too expensive:		Garage/lot prices are too high:	
Not enough connecting streets:		Too many traffic signals:	
Too many jay-walkers:			

APPENDIX C

FIRST PUBLIC FORUM RESPONSES

Appendix C. First Public Forum Responses

The following tables summarize all of the comments received during the four modal map mark-up sessions conducted during the first public forum.

Walking Issues and Opportunities, First Public Forum

Focus	Comment	Location		Start Point	End Point
Access					
	State St cutting off Deering Oaks Park	State St	Deering Oaks Pa	Forest Ave	Park Ave
	Pedestrian obstacle	Franklin Arterial	Along		
	Pedestrian obstacle	I-295	Along		
	Paths	Downtown Waterfront	Along	Ferry Terminal	Washington Ave
	Bridge sidewalk	Back Cove Bridge	Along		
	Lack sidewalk	Fox St	Along		
	Lack sidewalk	Franklin Arterial	Along		
	Lack crossings	Franklin Arterial	Along		
	Pedestrianize	Old Port	Area		
	Snow blocked sidewalk	Walnut St	Between	North St	Eastern Promenade
	Poor sidewalk condition	Eastern Promenade	Intersection	Eastern Promenade	Walnut St
	Poor sidewalk condition	Eastern Promenade	Between	Montreal St	Melbourne St
	Poor sidewalk condition	Eastern Promenade	Between	Quebec St	Congress St
	Poor sidewalk condition	North St	Between	Walnut St	Eastern Promenade
	Lack sidewalk	Eastern Promenade	Between	North St	Washington Ave
	Narrow sidewalk	Mountfort St	Between	Congress St	Federal St
	Lack sidewalk	Federal St	Between	Hancock St	Mountfort St
	Lack sidewalk	Franklin Arterial	Along		
	Lack sidewalk	Franklin Arterial	Between	East Oxford St	Oxford St
	Lack sidewalk	Fox St	Between	Franklin Arterial	North Boyd St
	Narrow sidewalk	Casco Bay Bridge	Along		
	Lack sidewalk	Thompson Point Rd	Between	Train Station	Congress St
	Improve connection	Transit Center	Area	Sewall St	Downtown
	Restore historic grid	Wilmot St	Along		
	Restore historic grid	Union St	Along		
	Restore historic grid	Cotton St	Along		
	Restore historic grid	South St	Along		
	Improve connection	Concord Bus Station	Area	Concord Bus Station	Downtown
	Fence cuts off access to USM	Franklin Art	Intersection	Franklin Art	Back Cove
	No access	Transportation Center	Along	Transportation Center	Congress St
	Better connections	Casco Bay	Along	Casco Bay Lines	Thompsons' Point
	Reconnect closed streets	Franklin Art	Across		
	No access	Bus/Train Station	Area	Bus/Train Station	Ballpark
	Create access	Waterfront	Along	I-295	Preble St Ext
	Inaccessible for pedestrians	Commercial St	Along	Blue Star Mem Hwy	Hwy 77
	Difficult access	Park Ave	Intersection	Park Ave	Congress St
	No sidewalk from station	Sewall St	Along	Sewall St	Congress St
	No ped access	W Commercial St	Along	Blue Star Mem Hwy	Hwy 77
	Trail switchbacks too tight	Marginal Way	Along		
	Zone for "walkable" stores	Marginal Way	Along		
	Extend Elm St to Free St	Elm St	Along	Congress St	Free St
	Remove median	Spring St	Along	Temple St	Center St
	Access from Free St to Spring St	Free St	Between	Center St	Oak St
	Connect street through	Deering St Place	Between	Deering St	Congress St
	Take down fence	Frederick St	Intersection	Frederick St	Fore River Pkwy
	Add crosswalk	Surrendon St	Intersection	Surrendon St	I-295
	Restore connection through	Cotton St	Between	Middle St	Fore St
	Restore connection through	Cross St	Between	Middle St	Fore St
	Add crosswalk	Free St	Intersection	Free St	Temple St
	Add crossing from waterfront path	I-295	Between	Preble St Ext	Franklin Art
	Add public staircase	Pleasant St	Intersection	Pleasant St	Spring St
	Add public staircase	Oak St	Intersection	Oak St	Spring St
	Restore Wilmot St through	Wilmot St	Between	Congress St	Cumberland St
	Add connection	Franklin Art	Intersection	Franklin Art	Federal St
	Add connection	Franklin Art	Intersection	Franklin Art	Newbury St
	Remove fence	Franklin Art	Intersection	Franklin Art	I-295
	Create Bayside Pro,enade Trail	S of Marginal Way	Along	Loring Mem Park	Deering Oaks
	Pedestrian tunnel	Congress St	Intersection	Congress St	Franklin Art
	Advertise waterfront promenades	I-295	Along		

Walking Issues and Opportunities, First Public Forum

Focus	Comment	Location		Start Point	End Point
Safety					
	Difficult crossing	Congress St	Intersection	Congress St	Weymouth St
	Difficult biking	Congress St	Intersection	Congress St	Weymouth St
	Difficult crossing	Park Ave	Intersection	Park Ave	St John St
	Difficult biking	Park Ave	Intersection	Park Ave	St John St
	Difficult crossing	Deering Ave	Intersection	Deering Ave	Brighton Ave
	Difficult crossing	Forest Ave	Intersection	Forest Ave	Marginal Way
	Difficult biking	Forest Ave	Intersection	Forest Ave	Marginal Way
	Difficult biking	Forest Ave	Cloverleaf	Forest Ave	I-295
	Difficult crossing	Forest Ave	Cloverleaf	Forest Ave	I-295
	Difficult biking	Forest Ave	Intersection	Forest Ave	High St
	Difficult crossing	Forest Ave	Intersection	Forest Ave	High St
	Turning vehicles	State St	Between	Spring St	Deering St
	Turning vehicles	Preble St	Between	Baxter Blvd	Marginal Way
	Turning vehicles	Congress St	Intersection	Congress St	Washington Ave
	Poor sidewalk condition	State St	Between	Park Ave	Congress St
	Turning vehicles	Franklin Arterial	Intersection	Franklin Arterial	Commercial St
	Poor pedestrian lighting	State St	Between	Park Ave	Congress St
	Poor pedestrian lighting	Deering St	Along		
	Poor pedestrian lighting	Grant St	Along		
	Poor pedestrian lighting	Deering Ave	Between	Congress St	Park Ave
	Poor pedestrian lighting	Avon St	Along		
	Poor pedestrian lighting	Forest Ave	Along		
	Poor sidewalk condition	Deering St	Along		
	Poor pedestrian lighting	Preble St	Along		
	Poor pedestrian lighting	Cumberland St	Between	Washington Ave	Merrill St
	Poor pedestrian lighting	Munjoy St	Intersection	Munjoy St	Congress
	Poor pedestrian lighting	Munjoy St	Intersection	Munjoy St	Fore St
	Poor pedestrian lighting	Park Ave	Intersection	Park Ave	St John St
	Poor pedestrian lighting	Valley St	Along		
	Dangerous vehicular speeds	State St	Between	Forest Ave	Congress St
	Dangerous vehicular speeds	Park Ave	Along		
	Dangerous vehicular speeds	High St	Between	Forest Ave	Congress St
	Dangerous vehicular speeds	Washington Ave	Intersection	Washington Ave	Anderson St
	Medians	Commercial St	Along		
	Turning vehicles	State St	Intersection	State St	Spring St
	Difficult crossing	Longfellow Square	Intersection	Longfellow Square	Pine St
	Make 2-way	State St	Along		
	Make 2-way	High St	Along		
	Difficult crossing	Post Office	Area	Forest Ave	Portland St
	Make "No turn on red"	Spring St	Intersection	Spring St	Temple St
	Difficult crossing	Congress St	Intersection	Congress St	Preble St
	Difficult crossing	Franklin Arterial	Intersection	Franklin Arterial	Federal
	Difficult crossing	Eastern Promenade	Intersection	Eastern Promenade	Cutter St
	Traffic flow	Ft Allen Park	Area	Ft Allen Park	Eastern Promenade
	Difficult crossing	West End Bridge	Area	St John St	Danforth St
	Poor pedestrian accomodation	Spring St	Area	Spring St	Civic Center
	Difficult crossing	Walnut St	Intersection	Walnut St	North St
	Dangerous vehicular speeds	Washington Ave	Between	Back Cove Bridge	Eastern Promenade
	Difficult crossing	Washington Ave	Interseection	Washington Ave	Eastern Promenade
	Add traffic signal	Washington Ave	Interseection	Washington Ave	Eastern Promenade
	Difficult crossing	Franklin Arterial	Interchange	Franklin Arterial	I-295
	Difficult crossing	Congress St	Intersection	Congress St	Elm St
	Difficult crossing	High St	Intersection	High St	Park Ave
	Difficult crossing	High St	Intersection	High St	Marginal Way
	Difficult crossing	State St	Intersection	State St	Congress St
	Difficult crossing	State St	Intersection	State St	Spring St
	Left turn vehicles	State St	Intersection	State St	Spring St
	Difficult crossing	Forest Ave	Interchange	Forest Ave	I-295
	Lack crossing signal	State St	Intersection	State St	Congress St
	Pedestrian amenities	State St	Intersection	State St	Congress St
	Dangerous right on red	Congress St	Intersection	Congress St	Washington St
	Dangerous vehicular speeds	Park St	Along	Forrest St	Congress St
	Remove exchange	295 Exchange	Interchange	Forrest Ave	295 Exchange
	Add crosswalks	Franklin Art	Intersection		
	Add crosswalks	Federal	Intersection		

Walking Issues and Opportunities, First Public Forum

Focus	Comment	Location		Start Point	End Point
Safety					
	No crosswalks	W Commercial St	Along	Danforth St	Beach St
	Most dangerous street	Franklin Art	Along		
	Poor sidewalks	Forest Ave	Along		
	Wide lanes, high speeds	Park St	Along	Park St	Congress St
	Not pedestrian scale	Park St	Along	Park St	Congress St
	Traffic too fast	Congress St	Along	I-295	
	Dangerous crossings	Forest Ave	Along	Park Ave	Kennebec St
	No sidewalks	Somerset St	Along	Franklin Art	Elm St
	Difficult crossing	Forest Ave	Intersection	Forest Ave	Portland St
	Difficult crossing	Forest Ave	Intersection	Forest Ave	Bedford St
	Difficult crossing	Forest Ave	Intersection	Forest Ave	Congress St
	Brick too slick	Commercial St	Along	High St	Franklin Art
	No sidewalks	Franklin Art	Along	Congress St	Marginal Way
	Falling ice from roofs	Middle St	Along	Market St	Franklin Art
	Separate bikes and peds	Hwy 26	Along	Marginal Way	Baxter Boulevard
	No ice-maintenance on sidewalks	Franklin Art	Along	Commercial St	Congress St
	Dangerous area	Commercial St	Along	Franklin Art	Waterville St
	Separate bikes and peds	Preeble St Ext	Along	Baxter Rd	I-295
	Too wide	Commercial St	Along	Commercial St	Union St
	Broken connection	Franklin Art	Intersection	Franklin Art	Federal St
	Broken connection	Franklin Art	Intersection	Franklin Art	E Oxford St
	Broken connection	Franklin Art	Intersection	Franklin Art	Marginal Way
	Add crosswalks	Vaughn St	Intersection	Vaughn St	Brackett St
	Poorly lit	Pine St	Along	Pine St	State St
	Dangerous at night	Deering Ave	Along	Park St	Washburn St
	Vague crosswalk signals	High St	Intersection	High St	Congress St
	Dangerous crossing	I-295	Intersection	I-295	Forest Ave
	Dangerous crossing	Bedford St	Intersection	Bedford St	Forest Ave
	Dangerous intersection	Preble St Ext	Intersection	Preble St Ext	I-295
	Improve crosswalk	Preble St Ext	Intersection	Preble St Ext	Marginal Way
	Unsafe at night	Elm St	Along	Somerset St	Cumberland Ave
	Unsafe at night	Lancaster St	Intersection	Lancaster St	Preble St
	Very dangerous	Franklin Art	Intersection	Franklin Art	Marginal Way
	Improve lights and crosswalks	Franklin Art	Intersection	Franklin Art	Cumberland St
	Good	Congress St	Along	Elm St	Preble St
	Good for walking	Commercial St	Along	Center St	Franklin Art
	Dangerous crossing	Franklin Art	Intersection	Franklin Art	Commercial St
	Dangerous crossing	Franklin Art	Intersection	Franklin Art	Fore St
	Dangerous crossing	Franklin Art	Intersection	Franklin Art	Middle St
	Good stop signs	Middle St	Intersection	Middle St	Exchange St
	Speeds too high for ped crossings	Marginal Way	Along		
	Dangerous crossing	Marginal Way	Intersection	Marginal Way	Anderson St
	Dangerous crossing	Marginal Way	Intersection	Marginal Way	Eastern Promenade
	Unpleasant environment	Marginal Way	Along		
	Add crosswalk	Preble St Ext	Intersection	Preble St Ext	Parking Lot
	Add crosswalk	Federal St	Intersection	Federal St	Franklin Art
	Do not allow cars	Deering Oaks	Along		
	Remove the highway	I-295	Along		
	Repair intersection	Elm St	Intersection	Elm St	Cumberland St
	Add crosswalk	Temple St	Intersection	Temple St	Middle St
	Add crosswalk	Temple St	Intersection	Temple St	Fore St
	Improved crossing	Roberts St	Intersection	Roberts St	I-295
	Improved crossing	Deane St	Intersection	Deane St	I-295
	Improved crossing	Exeter St	Intersection	Exeter St	I-295
	Improved crossing	Payson St	Intersection	Payson St	I-295
	Improved crossing	St John St	Intersection	St John St	Park Ave
	Dangerous crossing	Deering Ave	Intersection	Deering Ave	Blue Star Mem
	Dangerous crossing	High St	Intersection	High St	Congress St
	Dangerous crossing	High St	Intersection	High St	Spring St
	Dangerous crossing	State St	Intersection	State St	Congress St

Walking Issues and Opportunities, First Public Forum

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Focus	Comment	Location		Start Point	End Point
Safety					
	Add crosswalk	Commercial St	Intersection	Commercial St	High St
	Add crosswalk	Commercial St	Between	High St	Park St
	Drivers run red lights	Elm St	Intersection	Elm St	Congress St
	Remove cloverleaf	I-295	Intersection	I-295	Forest Ave
	Dangerous crossing	Preble St	Intersection	Preble St	Marginal Way
	Narrow sidewalks	Elm St	Between	Marginal Way	Kennebec St
	No sidewalks	Preble St	Between	Marginal Way	Kennebec St
	Dangerous speeds	Congress St	Intersection	Congress St	Washington Ave
	Add traffic light	Washington Ave	Intersection	Washington Ave	Fox St
	Unsafe sidewalks	Congress St	Area	Eastern Promenade	Munjoy St
	Remove exit	I-295	Interchange	I-295	Forest Ave

Biking Issues and Opportunities, First Public Forum

Focus	Comment	Location		Start Point	End Point
Access					
	Confusion accessing penninsula	Back Cove Bridge	Area	Washington Ave	US Route 1A
	Inadequate bike access	Hwy 26	Along	Baxter Blvd	Marginal Way
Parking					
	Add bike parking	Public Boat Launch	Area		
	Add covered bike parking	Commercial St	Intersection	Commercial St	Franklin Art
Path					
	Add bike boulevard	Surrendon St	Between	I-295	Brackett St
Paths					
	Develop a bike loop around the penninsula	Waterfront	Loop		
	Add separate bike path	Congress St	Along		
	Add separate bike path	Forest Ave	Along		
	Add separate bike path	Preble St	Along		
	Add separate bike path	Elm St	Along		
	Add separate bike path	Franklin Arterial	Along		
	Add separate bike path	Washington Ave	Along		
	Add separate bike path	Caso Bay Bridge	Along		
	Add separate bike path	Marginal Way	Along		
	Add bike lanes	Franklin Arterial	Along		
	Add bike lanes	Congress St	Along		
	Add bike lanes	Washington Ave	Along		
	Add bike lanes	Forest Ave	Along		
	Paths	Back Cove Waterfront	Along		
	Paths	East End Waterfront	Along		
	Add bike lanes	Washington Ave	Along		
	Add bike lanes	Brighton Ave	Along		
	Add covered bike lane	I-95	Interchange	I-95	I-295
	Discontinuous bike lane	Outer Congress St	At	Outer Congress St	Underpass
	Lack bike lanes	Forest Ave	Interchange	Forest Ave	I-295
	Add separate bike path	I-295	Along		
	Add separate bike path	State St	Along		
	Add separate bike path	High St	Along		
	Add separate bike path	York St	Between	High St	State St
	Create safe route	Downtown	Area	USM	Downtown
	Create bike boulevard	S Portland	Area		
	Create bike boulevard	Decring	Area		
	Add lanes	Park St	Along		
	Great lighting	Waterfront	Along	I-295	Blue Star Mem Hwy
	Add bike lanes	Valley St	Along		
	Add bike lanes	St John St	Along		
	Add bike lanes	Commercial St	Along	Transportation Center	Hubs
	Add bike lanes	Congress St	Along		Airport
	Bike lane disappears	Preble St Ext	Intersection	Preble St Ext	Baxter Blvd
	Good bike alternative to Congress	Free St	Along	Union St	High St
	Create bike boulevard	Spring St	Along		
	Add comfort station	Cumberland Ave	Along	Mayo St	Smith St
	Add comfort station	Congress St	Intersection	Congress St	Myrtle St
	Bad bike crossing	County Way	Between	County Way	Fore River Pkwy
	Add traffic light	Frederick St	Intersection	Frederick St	Fore River Pkwy
	Add bike route	Danforth St	Along	Vaughn St	
	Bike comfort station in hospital	Congress St	Intersection	Congress St	Gilman St
	Improve intersection	York St	Intersection	York St	State St
	Add bike comfort station	Spring St	Intersection	Spring St	Temple St
	Bike boulevard	Fore St	Along	Franklin Art	Eastern Promenade
	Bike boulevard	Fox St	Along	Blue Star Mem Hwy	Eastern Promenade
	Bike boulevard	Cutter St	Along		
	Make bike parking	Middle St	Between	Market St	Exchange St

Biking Issues and Opportunities, First Public Forum

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Focus	Comment	Location		Start Point	End Point
Safety					
	Difficult biking	Marginal Way	Intersection	Marginal Way	Forest Ave
	Difficult biking	Marginal Way	Intersection	Marginal Way	Preble St
	Difficult biking	Marginal Way	Intersection	Marginal Way	Franklin Arterial
	Difficult biking	Deering Ave	Intersection	Deering Ave	Brighton Ave
	Difficult biking	Congress St	Intersection	Congress St	Franklin Arterial
	Difficult biking	Eastern Promenade	Intersection	Eastern Promenade	Cutter St
	Difficult biking	State St	Along		
	Difficult biking	High St	Along		
	Difficult biking	Back Cove	Area	Washington Ave	US Route 1A
	Difficult biking	Washington Ave	Interseection	Washington Ave	Walnut St
	Remove parking	Washington Ave	Interseection	Washington Ave	Walnut St
	Difficult biking	Washington Ave	Interseection	Washington Ave	Eastern Promenade
	Difficult biking	Franklin Arterial	Along		
	Dangerous drainage grates	West End Bridge	Along		
	Time signals for safe speed	Congress St	Along		
	Time signals for safe speed	Washington St	Along		
	Time signals for safe speed	Park St	Along		
	Very dangerous	Park St	Along	I-295	St John St
	Add bike lanes	Park St	Along	Deering St	State St
	Dangerous area	Forest Ave	Interchange	Forest Ave	I-295 Interchange
	Dangerous area	Commercial St	Along	Franklin Art	Waterville St
	Dangerous crossing	I-295	Intersection	I-295	Forest Ave
	Dangerous crossing	Bedford St	Intersection	Bedford St	Forest Ave
	Dangerous intersection	Preble St Ext	Intersection	Preble St Ext	I-295
	Unsuitable roads	Elm St	Along	Marginal Way	Oxford St
	Very dangerous	Franklin Art	Intersection	Franklin Art	Marginal Way
	Dangerous crossing	Franklin Art	Intersection	Franklin Art	Cumberland St
	Dangerous crossing	Franklin Art	Intersection	Franklin Art	Congress St
	Rail tracks in road	W Commercial St	Along		
	Dangerous crossing	Marginal Way	Intersection	Marginal Way	Anderson St
	Traffic calming	Washington Ave	Along	Fox St	Congress St
	Dangerous biking	Deering Ave	Between	Washburn St	Blue Star Mem Hwy

Transit Issues and Opportunities, First Public Forum

Focus	Comment	Location		Start Point	End Point
Route Level					
	Improve connection	Airport	To		
	Improve connection	Train Station	To		
	Free dedicated lane BRT	Congress St	Along		
	Commuter bus	West End	Between	West End	Outer Portland
	Commuter bus	East End	Between	East End	Outer Portland
	Commuter bus	Bayside	Between	Bayside	Outer Portland
	Lack connection	Waterfront	Between	Forest Ave	Congress St
	Loop bus	Downtown Waterfront	Along	Downtown Waterfront	Commercial St
	Loop bus	West End Waterfront	Along	West End Waterfront	St Johns St
	Loop bus	Back Cove Waterfront	Along	Back Cove Waterfront	Marginal Way
	Loop bus	East End Waterfront	Along	East End Waterfront	Eastern Promenade
	New route	Westbrook	Between	Westbrook	Maine Mall
	Dedicated lane BRT	Penninsula	Between	Penninsula	Maine Mall
	Dedicated lane BRT	Penninsula	Between	Penninsula	Augusta
	Indirect route	Westbrook	Between	Elm St	Maine Mall
	New bus stop	Bedford St	Intersection	Bedford St	Durham St
	Extend #4X	Riverside	Area	Riverside	Warren Ave
	Create Peninsula Loop	Commercial St	Area	Commercial St	Marginal Way
	New route, no Loop	Congress St	Along	East Promenade	Bus Terminal
	New route	Washington Ave	Along	Congress St	Casco Bay Ferry
	New Route	Franklin St	Along		
	New Route	Outer Brighton	Along	Outer Brighton	Congress St
	Higher frequency	#1 Route	Along		
	Shuttle	Commercial St	Along	State St	Franklin Art
	Extend S Portland line to Murray Hill	Commercial St	Along		
	Eliminate loop	Congress St	Along		
	Add bus stop	Marginal Way	Intersection	Marginal Way	Elm St
	Add bus stop	Marginal Way	Between	Elm St	Franklin Art
	New route to/from bus terminal	Congress St	Along		
	New route from outer Foxes to Congress	Congress St	Along		
	New route	Franklin Art	Between	Washington Ave	Casco Bay Term
	New route from Outer Brighton via Law Scho	Congress St	Along		
New Alignment					
	Use existing line to extend east	Springfield ML Terminal	Along		
Service					
	Create new all-day trolley line	Congress St	Along		
	Create new all-day trolley line	Deering Ave	Along		
	Create new all-day trolley line	Forest Ave	Along		
	Create new all-day trolley line	Preble St	Along		
	Create new all-day trolley line	Elm St	Along		
	Create new all-day trolley line	Washington Ave	Along		
	Lack queue space	Metro Pulse	At		
	Lack queue space	Metro Pulse	At		
	Improve service	Western Suburbs	Area		
	Need shelter	Post Office	Metro Stop		
	Need shelter	USM	Metro Stop		
	Need shelter	Libbytown	Metro Stop		
	Need announcements and signs	PULSE	Metro Stop		
	Create hub	Maine State Pier	Intersection	Franklin Art	Commercial St
	Confusing signage	Center St	Intersection	Center St	Congress St
	Uncleared snow blocks bus stops	Washington Ave	Intersection	Washington Ave	Congress St
	Uncleared snow blocks bus stop	Forest Ave	Intersection	Forest Ave	Noyes St
	Uncomfortable facility	MetroPulse	Area		
	METROPulse inadequate	Elm St			
	Service to Mercy Hospital	Fore River Pkwy	Along		
	Commuter rail along existing tracks	County Way	Along		
	No detour	St John St	Along		
	Add indoor bus stop	Bedford St	Intersection	Bedford St	Forest Ave
	Express bus to Yarmouth, Freeport, Brunswi	Hwy 26	Along		

Driving Issues and Opportunities, First Public Forum

Focus	Comment	Location		Start Point	End Point
Parking					
	Add parking	Franklin Arterial	Along	I-295	Commercial St
	Parking garage w/shuttle	Franklin Arterial	Near Interchange	Franklin Arterial	I-295
	Parking garage w/shuttle	Washington Ave	Near Interchange	Washington Ave	I-295
	Parking garage w/shuttle	Preble St	Near Intersection	Preble St	Marginal Way
	Lack parking	Train Station	At		
	Remove parking lot	Fore St	Intersection	Fore St	India St
	Build in parking lots, remove garages	Downtown	Area		
	Parking lot	Marginal	Intersection	Marginal	CBITD
	Remove parking	Commercial St	Intersection	Commercial St	State St
	Bad parking	High St	Intersection	High St	Spring St
	Add parking garage	Marginal Way	Intersection	Franklin Art	I-295
	Add parking	I-295	Interchange	Congress St	Thompson Pt Rd
Safety					
	Poor lighting	Back Cove Bridge	Area	Washington Ave	US Route 1A
Traffic					
	Northbound needs attention	State St	Between	I-295	Casco Bay Bridge
	Poor traffic signal coordination	Forest Ave	Between	Woodford St	Congress St
	Poor lane markings	Forest Ave	Between	Woodford St	Congress St
	Increase to 2 lanes going through	Forest Ave	Between	Woodford St	Congress St
	Redirect southbound traffic to the connector	State St	Between	I-295	Casco Bay Bridge
	Poor traffic signal coordination	Franklin Arterial	Between	I-295	Commercial St
	Poor traffic signal coordination	Fore St	Along		
	Poor traffic signal coordination	Middle St	Along		
	Poor traffic signal coordination	Center St	Along		
	Poor traffic signal coordination	High St	Along		
	Reopen for traffic	Wilmot Ave	Between	Cumberland Ave	Congress St
	Unpredictable pedestrian behavior	Congress St	Along		
	Add blinking light	East End Fire Station	At		
	Poor lane markings	USM Law Building	Area		
	Poor lane markings	Congress St	Area	Congress St	Bramhall St
	Difficult left turn	Deering Ave	Intersection	Deering Ave	Deering St
	Poor lane markings	Franklin Arterial	Interchange	Franklin Arterial	I-295
	Poor lane markings	Forest Ave	Intersection	Forest Ave	Bedford St
	Poor lane markings	Deering Ave	Intersection	Deering Ave	Brighton Ave
	Make 1-way	Valley St	Along		
	Make 1-way	St John St	Along		
	High speeds	Franklin Art	Along		
	High congestion in summer	Commercial St	Along		
	High speeds	State St	Along	Park St	Commercial St
	High speeds	High St	Along	Park St	Commercial St
	Free right turn	Forest Ave	Intersection	Forest Ave	Marginal Way
	Right turn ramp	I-295	Interchange	I-295	Congress St
	Confusing intersection	Danforth St	Intersection	Danforth St	Commercial St
	Bad visibility and signage	Deering Ave	Intersection	Deering Ave	Vaughn St
	Too congested	State St	Along	Kennebec St	Park St
	Too congested	High St	Along	Kennebec St	Park St
	Lights too long	Marginal Way	Intersection	Marginal Way	Forest Ave
	Turns into one lane	Oxford St	Along	Adler St	Preble St
	Narrow lanes	Franklin Art	Along		
	Narrow lanes	Preble St Ext	Along		
	Too fast	High St	Along	Congress St	Park St
	Remove State St in Deering Oaks	State St	Along	Forest Ave	Blue Star Mem Hwy
	Make 1-way	Forest Ave	Along	Marginal Way	Portland St

APPENDIX D

PRELIMINARY TRANSIT STRATEGIES

Appendix D. Preliminary Transit Strategies

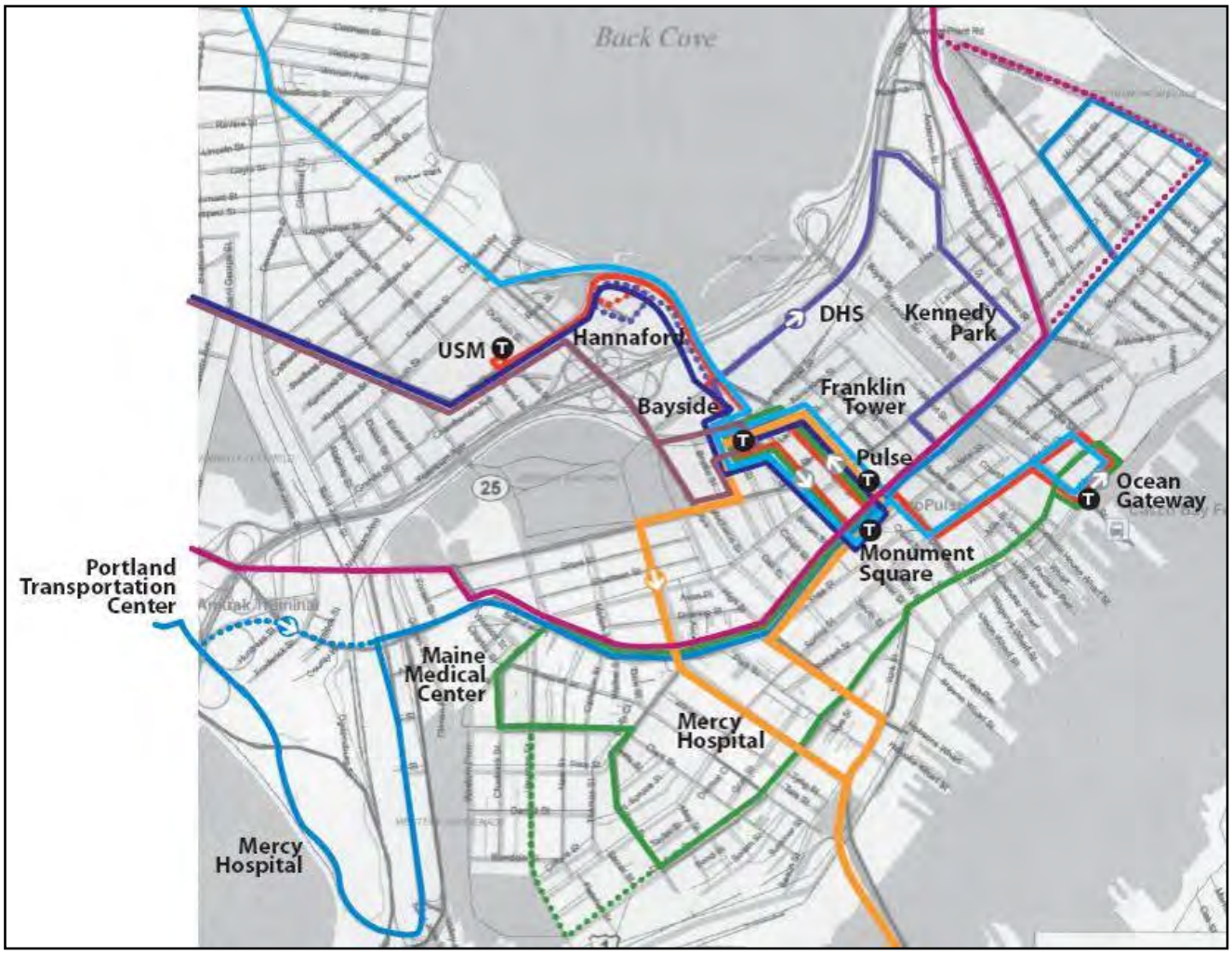
The following transit operations and routing strategies were developed as the result of a brainstorming session with the consulting team, METRO, South Portland Bus, and City planners. They represent just two of dozens of possible routing options. The evaluation of these options helped guide the development of the recommended routing strategy described in Chapter 6.

Short-Term Strategy 1

The first draft strategy for short-term transit system changes respects the current mission of METRO by serving all current destinations with front-door service while attempting to improve the efficiency of existing routes, add other key destinations that are not well-served, and add stops for future growth areas. Specifically, this strategy attempts to do the following:

1. Increase north/south and east/west cross-peninsula frequency on in-town routes
2. Introduce a transit hub in Bayside that provides comfortable waiting areas and transfers to other routes
3. Modify Route 8 to create a USM / Bayside / Monument Square / Ocean Gateway shuttle that overcomes the I-95 barrier and connects across the peninsula (Red line on Figure 5 below)
4. Create a Bayside / Congress Street / Maine Medical Center / West End / Ocean Gateway link. This also links the West End with the waterfront and gives residents of Casco Bay islands direct access to MMC (Green line on Figure 5 below)
5. Connect Bayside to the DHS building and Franklin tower via Kennedy Park, with an optional extension to Hannaford (Purple line on Figure 5 below)
6. Congress Street route extended to include the new Mercy Hospital and the Portland Transportation Center (Blue line on Figure 5 below)
7. Alter Route 5 to serve the Maine Mall via USM, Brighton Avenue, and Stevens Avenue, giving passengers along this route segment and people from Westbrook the ability to transfer to the Mall route without traveling into downtown (Dark Blue line on Figure 5 below)
8. South Portland buses routed via the Elm Street pulse and a new Bayside transit hub (Yellow line in Figure 5 below)

Figure D-1 Short-Term Preliminary Transit Strategy 1



Route by Route Details

Route 1: Congress Street

Add Routes 6 and 3 to Congress Street corridor and alternate departures to produce 15-minute headways. Extend Route 1 beyond St. John Street to serve Mercy Hospital and the Portland Transportation Terminal.

Route 2: Forest Avenue

This route could be extended to Ocean Gateway.

Route 3: North Deering

This should probably be called the Stevens Avenue route. Overlap Congress Street route and alternate trip times. Interline buses to Route 6 and Washington Avenue.

Route 4: Westbrook

Operate all Route 4 buses via Brighton Avenue and USM. Buses to the Maine Mall buses could overlap the in-town segment beginning at Stevens Avenue. The Westbrook route could be extended to Ocean Gateway.

Route 5: Maine Mall

This route could increase frequency on the USM/Brighton Avenue portion of Route 4, it could increase frequency on Congress Street, or it could remain on Park Avenue.

Route 6: North Deering

This should probably be called the Washington Avenue route. Overlap Congress Street route the maximum extent possible. Operate via Munjoy Hill if possible. Stagger trip times. Interline buses to Route 3 and Stevens Avenue.

Route 7: Falmouth

Shorten the route in Falmouth. Continue to serve Veranda Street. Could this route continue to the peninsula via Ocean Avenue? To what extent do current riders require express access to Congress Street?

Route 8: Peninsula

Replace with revised peninsula routes

South Portland

Adjust peninsula segment to serve Elm Street pulse and Bayside

Short-Term Strategy 2

This strategy is intended to modify the general nature of existing METRO service on the peninsula to reflect a "corridor" approach to transit routes that relies less on transit hubs. Timed departures would continue to operate from METRO Pulse, but most buses would be traveling through the center of the system to serve destinations on the other side of this transit hub. The advantage of this approach is to create clearer routes that serve additional destinations with reduced trip times. However, front-door service to many key destinations is replaced with far-side curb stops or short walks to new alignments.

Specifically, this strategy attempts to do the following:

1. Through-route routes through downtown.
2. Increase service coverage on the Portland Peninsula (particularly to Bayside and the Waterfront).
3. Provide direct service (fewer transfers) to more locations.
4. Develop frequent service corridors:
    - North/south along Congress.
    - East/west along Forest (existing).
    - East/west between USM and Waterfront via Hannafords and Downtown.
5. Increase frequency and predictability:
    - Operate routes are regular 15, 30 or 60 minute headways.
    - Provide more frequent service (every 15 minutes to major activity centers).

- Alternative 30 minute headway routes in frequent service corridors to provide service every 15 minutes.

6. Revise existing routes to serve locations now served by circuitous Route 8:
   - Extend Route 2 to Waterfront.
   - Re-route Route 2 via Hannafords and Preble/Elm.
   - Re-route Route 7 via DHS, Bayside, and extend to Mercy Hospital and MMC.
   - Create loop at south end of Route 8 to serve MMC.
7. Work within existing Metro budget.

Figure D-2 Short-Term Preliminary Transit Strategy 2

Route by Route Details

Route 1:

Reconfigure to operate via Maine Medical Center and new Mercy Hospital.

Route 2:

Re-route via Hannafords and Preble Street, and extend through downtown to Waterfront.

Route 3:

Extend through downtown to Bayside.

Route 4:

Operate as is or simplify outer end and extend to Waterfront or Bayside.

Route 5:

Through-route with Route 6 to improve service along Congress Street between Franklin Arterial and Preble Street Extension.

Route 6:

Through-route with Route 5 as described above.

Route 7:

Simplify outer end and re-route via Bayside and DHS, and extend to existing Mercy Hospital and MMC.

Route 8:

Replace existing Route 8 (whose locations would be served by changes to existing routes) with new Portland Transportation Center – USM – Hannafords – Downtown –Waterfront route.

SPBS Route 4:

Implement service changes developed in recent transit study, and alternate service with Route 5/6.

APPENDIX E

MODEL TDM ORDINANCES

Appendix E. Model TDM Ordinances

The following regulations are model Transportation Demand Management (TDM) ordinances that are in place around the country. Nelson\Nygaard feels that the ordinances included here are outstanding examples of TDM policies from which Portland could draw as it designs its own ordinance.

Ordinances included are:

1. Cambridge Parking and Transportation Demand Management Ordinance
2. Redwood City Parking Management Ordinance
3. Boca Raton Transportation Demand Management Ordinance
4. San Bernardino County Travel Demand Management Ordinance
5. City of Los Angeles Transportation Demand Management Ordinance

1. Cambridge Parking and Transportation Demand Management Ordinance

Section 10.18.010 Purpose.

(a) It is the purpose of this Chapter to regulate and control atmospheric pollution from motor vehicles by formalizing parking and transportation demand management planning, programs, and coordination which have been ongoing for a number of years. This Chapter will reduce vehicle trips and traffic congestion within the City, thereby promoting public health, safety, and welfare and protecting the environment. This Chapter requires parking and transportation demand management (PTDM) plans for commercial parking facilities and other types of non-residential parking facilities over a specified size as set forth in 10.18.050 and 10.18.070. This Chapter also establishes a process whereby City officials will be able to track the number, use and location of off-street parking spaces in the City.

(b) A Parking and Transportation Demand Management Planning Officer will be designated by the City Manager with the responsibility for reviewing, conditioning, approving and/or denying PTDM plans. Any project subject to the requirements of this Chapter shall not be qualified to receive a permit from the Planning Board, a commercial parking permit from the Commercial Parking Control Committee, a special permit or variance from the Board of Zoning Appeal, a building permit from the Commissioner of Inspectional Services, a certificate of occupancy from the Commissioner of Inspectional Services, or an operating license from the License Commission absent written approval of its PTDM plan from the PTDM Planning Officer or evidence of registration of its parking spaces with the Department of Traffic, Parking, and Transportation.

Section 10.18.020 Definitions.

"Commercial Parking Space" means a parking space available for use by the general public at any time for a fee. The term shall not include (i) parking spaces which are owned or operated by a commercial entity whose primary business is other than the operation of parking facilities, for the exclusive use of its lessees, employees, patrons, customers, clients, patients, guests or residents but which are not available for use by the general public; (ii) parking spaces restricted for the use of the residents of a specific residential building or group of buildings; (iii) spaces located on public streets; or (iv) spaces located at a park-and-ride facility operated in conjunction with the Massachusetts Bay Transportation Authority.

"Commercial Parking Facility" means a parking facility owned or operated by a commercial entity whose primary business is the operation of a parking facility and at which there are at least five (5) Commercial Parking Spaces.

"Commercial Parking Permit" means a (i) permit issued under chapter 10.16 of the Cambridge Municipal Code, authorizing the use of a designated number of parking spaces at a specified location as Commercial Parking Spaces; (ii) a permit or approval issued prior to the effective date of this Chapter pursuant to the Procedures, Criteria, and Memorandum of Agreement dated November 15, 1984; (iii) a Controlled Parking Facility Permit that expressly authorizes use of the parking facility for Commercial Parking Spaces; or (iv) a letter from the Director confirming the number of spaces at a specified location that were in existence and being used as Commercial Parking Spaces as of October 15, 1973.

"Controlled Parking Facility Permit" (CPFP) means a permit issued by the Director prior to the effective date of this Chapter, which authorized the construction or operation of a parking space or the construction, operation, or modification of a parking facility.

"Determination of Exclusion" means a determination made by the Director that a parking facility or a parking space did not require a controlled parking facility permit.

"Director" means Director of the Cambridge Department of Traffic, Parking, and Transportation.

"Effective Date" means November 16, 1998, the original date of final adoption of this Chapter of the Cambridge Municipal Code.

"Existing Parking Facility" shall mean a parking facility for which (i) a certificate of occupancy was issued by the Commissioner of Inspectional Services; (ii) an operating license was issued by the License Commission; or (iii) the Director issued a letter confirming the number of spaces at that location which spaces were in existence and being used as commercial parking spaces as of October 15, l973 (a "Director's Letter").

"New Project" means a project to construct or operate parking spaces within a new facility or an existing parking facility which will cause such facility to have a net increase in the number of spaces for which a certificate of occupancy, operating license, variance, special permit, or Director's Letter has not been issued as of the effective date of this Chapter and which is not a park-and-ride facility operated in conjunction with the Massachusetts Bay Transportation Authority.

"Parking Facility" means any lot, garage, building or structure or combination or portion thereof, on or in which motor vehicles are parked, except any such facility used in association with or by a municipal police or fire station, and in the case of university or college campuses, the stock of parking spaces maintained within the City by the university or college which supports university or college activities within the City.

"Person" means and includes a corporation, firm, partnership, association, executor, administrator, guardian, trustee, agent, organization, any state, regional or political subdivision, agency, department, authority or board, and any other group acting as a unit, as well as a natural person.

"Planning Officer" means the City official responsible for PTDM plan reviews.

"PTDM" means Parking and Transportation Demand Management.

"Small Project" means a project to construct or operate five (5) to nineteen (19) non-commercial, non-residential parking spaces within a new facility or an existing parking facility which will cause such Facility to have a net increase in the number of spaces for which a certificate of occupancy, operating license, variance, special permit, or Director's Letter has not been issued as of the effective date of this Chapter. To qualify as a Small Project, the total number of non-commercial, non-residential parking spaces at the parking facility must remain at or below nineteen (19).

Section 10.18.030 PTDM Planning Officer.

Within thirty (30) days of the effective date of this Chapter, the City Manager shall designate a Parking and Transportation Demand Management Planning Officer who shall have responsibility for reviewing, conditioning, approving, and/or denying PTDM plans and who shall report to the City Manager. Said officer shall be a Cambridge resident within six months of employment in this position. Prior to rendering his/her determination(s), the Planning Officer shall consult with the PTDM plan applicant, the Director and the Assistant City Manager for Community Development.

Section 10.18.040 Registration of All Parking Spaces.

(a) No person shall build, expand, or reconfigure a parking facility for non-residential parking spaces resulting in a net increase in the number of parking spaces or a change in the use of such spaces based on the categories of use listed below at paragraphs b(v) and (vi), without first submitting a parking registration form to, and obtaining acceptance from, the Director.

(b) The registration form shall be prepared by the Director and shall be available at the offices of the Department of Traffic, Parking and Transportation. The form will require the following information:

(i) name and address of parking facility owner;

(ii) name and address of parking facility operator;

(iii) address of parking facility;
(iv) total number of existing parking spaces;
(v) number of existing parking spaces in each of the following categories:
- residential
- commercial
- non-commercial
- customer
- employee
- patient
- student
- client
- guest

(vi) number of parking spaces proposed to be added to the parking facility in each of the following categories:
- residential
- commercial
- non-commercial
- customer
- employee
- patient
- student
- client
- guest

(vii) identification of any existing parking permits for the parking facility; and
(viii) explanation of any enforcement actions against the parking facility.
(c) The Director shall accept or return a registration form to the registrant with a request for additional information within thirty (30) days after the form was filed.
(d) The License Commission shall not issue a license and the Commissioner of Inspectional Services shall not issue a building permit or certificate of occupancy for a parking facility subject to this section without evidence (i) that the registration form has been accepted by the Director; and (ii) if required, that the facility has a PTDM Plan approved by the Planning Officer.

Section 10.18.050 Parking and Transportation Demand Management Plans.
(a) No person shall build, expand, or operate a parking facility subject to the Parking and Transportation Demand Management (PTDM) Plan requirements of this Chapter absent a PTDM Plan approved by the Planning Officer.
(b) The PTDM requirements of this Chapter shall apply to each of the following:
(i) any commercial parking facility for which a certificate of occupancy or operating license, variance or special permit was not obtained prior to the effective date of this chapter;
(ii) an existing commercial parking facility at which the number of parking spaces is increased after the effective date of this chapter;
(iii) any parking facility at which the use of existing or permitted parking spaces is changed to commercial use after the effective date of this chapter;
(iv) any new project to build or create by change of use twenty or more non-residential parking spaces; and
(v) any new project to expand an existing parking facility resulting in a total number of non-residential parking spaces of twenty (20) or more.
(c) The PTDM Plan shall be designed to minimize the amount of parking demand associated with the project and reduce single-occupant vehicle trips in and around Cambridge. The PTDM Plan shall be based on the following facts, projections and commitments:

(i) Facts and Projections:
- nature of development and property use;
- proximity of project to public transit and other non-Single-Occupant Vehicle facilities;
- availability of and accessibility to offsite parking spaces which could serve the project;
- number of employees and their likely place of origin; and
- type and number of patrons/users of proposed parking supply and their likely place of origin.
- number of vehicle trips expected to be generated by the project and description of measures to reduce associated traffic impacts on Cambridge streets; and
- other factors published by the Planning Officer.

(ii) Commitments:
- commitment to work with the Cambridge Office of Work Force Development;
- commitment to implement vehicle trip reduction measures including some or all of the following:

subsidized MBTA passes and other incentives; shuttle services; ride-sharing services; bicycle and pedestrian facilities; flexible working hours; preferential parking for Low Emission Vehicles/Zero Emission Vehicles/bicycles/carpools/vanpools (Note: this list is not meant to preclude implementation of other types of vehicle trip reduction measures). This commitment must be accompanied by a detailed description of the measures proposed to be implemented; and

- commitment to establish and make reasonable efforts to achieve a specified, numeric reduction (or percent reduction) in single-occupant vehicle trips in and around Cambridge. The percent reduction will be based on PTDM practices successfully implemented in reasonably comparable environments and as identified in professional and academic literature and based on analysis of existing trip reduction measures in Cambridge.

Each PTDM Plan shall identify the total number of existing and proposed parking spaces at the facility and specify how many existing and proposed spaces fall within each of the following categories (explain how many spaces are used for multiple purposes):
- residential
- commercial
- non-commercial
- customer
- employee
- patient
- student
- client
- guest

Where the parking facility includes or proposes a combination of commercial and non-commercial parking spaces, the Plan shall specify how the parking facility will prevent commercial use of the non-commercial parking spaces.

Each PTDM Plan shall contain the following certification signed by an authorized corporate officer:

"I hereby certify that a commercial parking permit has been obtained for each space being used for commercial parking. None of the other existing or proposed parking spaces at this parking facility have been or will be available as commercial parking spaces until a commercial parking permit therefore has been obtained."

(d) The Planning Officer shall review, condition, approve and/or deny the PTDM Plan based on the above-listed facts, projections, and commitments. The Planning Officer shall issue his/her decision in writing within 60 days of receipt of the proposed PTDM Plan. The required time limit

for action by the Planning Officer may be extended by written agreement between the proponent and the Planning Officer. Failure by the Planning Officer to take final action within said sixty (60) days or extended time, if applicable, shall be deemed to be approval of the proposed PTDM plan. If the project proponent elects to make a request pursuant to 10.18.060, the decision of the Planning Officer shall be expanded to include a recommendation about whether offsite parking should be allowed at distances greater than those allowed in the Zoning Ordinance and/or whether fewer parking spaces than the minimum required in the Zoning Ordinance should be allowed. Decisions of the Planning Officer may be appealed by the project proponent to a review committee composed of the City Manager, or his designee, and two other City staff members designated by the City Manager none of whom may have participated in the initial review of the Plan.

(e) The Planning Officer shall also make available sample PTDM plans which a project proponent may adapt for their project, such to approval by the Planning Officer.

(f) No permit, commercial parking permit, special permit, variance, building permit, certificate of occupancy, or operating license shall be issued for any project subject to 10.18.050 by the Planning Board, Commercial Parking Control Committee, Board of Zoning Appeal, Commissioner of Inspectional Services, or License Commission absent a written decision indicating approval from the Planning Officer of the project proponent's PTDM Plan. Any such permit or license shall be consistent with, and may incorporate as a condition, the decision of the Planning Officer and shall include written notice of the requirements of 10.18.050 (g) and (h), below. Nothing in this ordinance shall be construed to limit the power of the Planning Board or Board of Zoning Appeal to grant variances from or special permits under the provisions of the Zoning Ordinance. No project proponent shall be required by the Planning Officer to seek such relief under the Cambridge Zoning Ordinance.

(g) Approvals issued by the Planning Officer shall be automatically transferrable by and among private parties, provided that the proposed new owner (the "Transferee") shall continue to operate under the existing PTDM Plan and shall submit to the Planning Officer within thirty (30) days of the title transfer a certification that the existing PTDM plan will remain in effect. The certification shall be submitted on a form issued by the Planning Officer and shall certify that such Transferee commits to implement the existing PTDM plan, as approved; and acknowledges that failure to implement the plan is subject to the enforcement provisions of this Chapter. Where such certification is submitted, the approved plan shall remain in effect as to the Transferee. The Transferee may elect instead to and consult with the Planning Officer within thirty (30) days of title transfer regarding appropriate revisions to the existing plan. Based on such consultation, the Planning Officer may require information from the Transferee concerning proposed changes in use of the parking facility and associated buildings and the relevant facts and projections regarding the proposed changes. Within thirty (30) days of receipt of such information, the Planning Officer may issue a written approval of the revised plan and obligations to the Transferee, or the Planning Officer may require submittal of a new PTDM Plan from the Transferee for review, condition, approval and/or denial. Until such time as a new or revised plan has been approved, the existing PTDM plan shall remain in effect.

(h) Each PTDM Plan approval issued by the Planning Officer shall contain, at a minimum, the following conditions:

(i) The parking facility owner and operator each commit to implement all elements of the PTDM Plan, as approved, including annual reporting requirements, and to maintain records describing implementation of the Plan;

(ii) The City shall have the right to inspect the parking facility and audit PTDM implementation records; and

(iii) The parking facility owner and operator each commit to notify and consult with the Planning Officer thirty (30) days prior to any change in ownership, use or operation of the facility.

Section 10.18.060 Reduction in Minimum Parking and Maximum Distance Requirements.

(a) A project proponent may elect to request that the Planning Officer include as an element of its PTDM Plan a plan for fewer parking spaces that the minimum set forth in the Zoning Ordinance. Upon the written request of the project proponent, based on an evaluation of the facts, projections, and commitments listed at 10.18.050 (c), the Planning Officer may make a written recommendation about the maximum number of parking spaces for the project. This recommendation shall remain subject to review and approval by the Planning Board or Board of Zoning Appeal as appropriate.

(b) A project proponent may elect to request that the Planning Officer include as an element of its PTDM Plan a plan for utilizing off-site parking spaces that are farther from the project site than the maximum distance requirements set forth in the Zoning Ordinance. Upon the written request of the project proponent, based on an evaluation of the facts, projections, and commitments listed at 10.18.050 (c), the Planning Officer may make a written recommendation about how many parking spaces serving the project may be appropriately located at an off-site location and at what distance from the project site. This recommendation shall remain subject to review and approval by the Planning Board or Board of Zoning Appeal as appropriate.

Section 10.18.070 Requirements Applicable to Small Projects.

The owner or operator of each Small Project shall implement at least three (3) PTDM measures and maintain records of such implementation. A list of acceptable types of measures may be obtained from the Traffic, Parking and Transportation Department, the Inspectional Services Department, the Community Development Department, or the License Commission. The Planning Officer shall create and periodically update this list, which shall include: T-pass subsidies; bicycle parking; changing facilities; carpools/vanpools; financial incentives not to drive alone; or other similar measures.

Section 10.18.080 Enforcement.

(a) The Director shall enforce the provisions of this Chapter. If the Director has reason to believe that any provision of this Chapter is being violated, the Director shall investigate the possible violation. If after investigation the Director determines that any provision of this Chapter is being violated, s/he shall provide a first written notice of violation to the person charged with the violation, or the duly authorized representative thereof, of the determination of violation and shall order that the violation cease within thirty (30) days of the issuance of the first written notice. If the violation is not cured within the thirty (30) days after issuance of the determination of violation, the Director may proceed to assess the fines established in this chapter as well as any other remedies available to the city. In addition to all other remedies, if the violation has not ceased within thirty (30) days after the first written notice, then the Director may order shutdown of the parking facility. Second or subsequent written notices to a facility for the same violation shall be immediately effective and shall not provide the thirty (30) day opportunity to cure contained in the first written notice. A determination and order of the Director may be appealed to the City Manager by the person charged with the violation within thirty (30) days of issuance of the Director's determination and order.

(b) In addition to other remedies available to the City, any person who builds or modifies a parking facility without complying with the provisions of this Chapter shall be subject to a fine of up to $10.00 per day per parking space for every day that such parking space was operated without a registration accepted by the Director or without a PTDM Plan approval issued by the Planning Officer or in non-compliance with an approved PTDM Plan. On a determination, after investigation, by the Director that this Chapter is being violated, and the exhaustion of any appeal to the City Manager in accordance with (a) above, the Director shall take steps to enforce this

chapter by causing complaint to be made before the district court and/or by applying for an injunction in the superior court.

(c) In addition to other remedies available to the City, a determination that a facility is operating in violation of the provisions of this Chapter shall be ground for revocation by the Director of the facility's parking permit or other form of approval.

(d) The Planning Officer shall have independent authority to inspect a parking facility and audit its records to determine whether it is in compliance with its PTDM Plan. The Planning Officer shall issue a finding of non-compliance in writing and provide copies to the parking facility owner and operator and to the Director.

Section 10.18.090 Evaluation.

The PTDM Planning Officer shall prepare a report annually on the status and effectiveness of the implementation of this Ordinance.

2. Redwood City Parking Management Ordinance

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ORDINANCE NO._____

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF REDWOOD CITY AMENDING CHAPTER 20, ARTICLE VII OF THE REDWOOD CITY MUNICIPAL CODE BY AMENDING SECTIONS 20.96 THROUGH 20.96.21 IN THEIR ENTIRETY AND DIVISIONS 4, 5 AND 9 IN THEIR ENTIRETY.

RECITALS

WHEREAS, planned new development in Downtown Redwood City is likely to increase traffic and parking demand. *(Downtown Mixed Use Retail/Cinema Project Environmental Report, 2000)*; and

WHEREAS, the City has conducted a substantive review of the literature and the practices of other cities to determine the most effective ways of managing the traffic and parking demand; and

WHEREAS, based on that review the City has determined that the most effective tool for managing on-street parking is a program of pricing the on-street public parking at a rate so as to achieve a fifteen percent (15%) vacancy rate in the parking spaces on each block. (*See Shoup, Donald. The High Cost of Free Parking, American Planning Association Planners Press. 2005);* and

WHEREAS, underpriced on-street parking causes "cruising," which adds to traffic congestion. *Shoup, page 291*; and

WHEREAS, a vacancy rate of about 15% is necessary to avoid cruising-induced traffic, to facilitate easy ingress and egress, and to offer parking opportunities to as many different people as possible. *Shoup, page 297* ; and

WHEREAS, California Vehicle Code Section 22508 authorizes cities to establish parking meter zones and to fix the rate of fees for such zones; and

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WHEREAS, parking meter rate ordinances "may … justify a fee system intended and calculated to hasten the departure of parked vehicles in congested areas, as well as to defray the cost of installation and supervision." *DeAryan v. City of San Diego*, 75 CA2d 292, 296 (1946); and

WHEREAS, such parking meter rate ordinances are for the purpose of regulating traffic and the parking of vehicles in the public streets, not a tax for revenue purposes. *Id* at 293; and

WHEREAS, receipts from such parking meter rate ordinances "may be used not only in defraying the expenses of installation, operation and control of such parking space and parking meters, but also those incurred in the control of traffic which may affect or be affected by the parking of vehicles in the parking meter zones thus created, including those incurred in connection with painting lines and signs, maintaining mechanical traffic signals and other expenses of regulating traffic and enforcing traffic regulations with respect to all traffic which may affect or be affected by the parking of vehicles in parking meter zones." Id at 296; and

WHEREAS, using parking meter rates to achieve a vacancy rate of about 15% negates the necessity for time restrictions on the use of parking spaces; and

WHEREAS, certain formerly unmetered off-street parking facilities must be metered in order to meet the demands of changing patterns of use of Downtown parking; and

WHEREAS, the parking permit program requires modifications in order to meet the demands of changing patterns of use of Downtown parking.

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NOW THEREFORE BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF REDWOOD CITY THAT:

1. Sections 20.96 through 20.96.21 of Chapter 20, Article VII, Division 1, are hereby amended in their entirety to read as follows:

Sec. 20.96. PARKING TIME LIMITED ON CERTAIN DESIGNATED STREETS DURING CERTAIN DESIGNATED PERIODS: When signs are erected giving notice thereof, parking shall be limited as specified in the table below. Such limitations on parking shall be effective daily except on Sundays and holidays.

Street	Side	Limits	Maximum Parking Period	Applicable Hours
Arch Street	Easterly	Brewster Avenue to a point one hundred twenty-five feet (125') northerly of Brewster Avenue	Two (2) hours	Between the hours of nine o'clock (9:00) A.M. to six o'clock (6:00) P.M.
Arguello Street	Both	Brewster Avenue to Alden Street	Two (2) hours	Between the hours of nine o'clock (9:00) A.M. to six o'clock (6:00) P.M.
Arguello Street	Westerly	Alden Street to Hopkins Avenue	Two (2) hours	Between the hours of nine o'clock (9:00) A.M. to six o'clock (6:00) P.M.
Arguello Street	Westerly	Whipple Avenue to a point one hundred feet (100') southerly of Whipple Avenue	Two (2) hours	Between the hours of nine o'clock (9:00) A.M. to six o'clock (6:00) P.M.
Birch Street	Both	Broadway to a point one hundred ninety five feet (195') northerly of Broadway	Two (2) hours	Between the hours of nine o'clock (9:00) A.M. to six o'clock (6:00) P.M.
Brewster Avenue	Both	Warren to Arguello	Two (2) hours	Between the hours of nine o'clock (9:00) A.M. to six o'clock (6:00) P.M.
Brewster Avenue	Northwesterly	From a point sixty feet (60') northeasterly of northeasterly line of Arch Street to Broadway	Two (2) hours	Between the hours of nine o'clock (9:00) A.M. to six o'clock (6:00) P.M.
Brewster Avenue	Southeasterly	Broadway to Arch Street	Two (2) hours	Between the hours of nine o'clock (9:00) A.M. to six o'clock (6:00) P.M.
Broadway	Both	Brewster Avenue to Duane Street	One (1) hour	Between the hours of nine o'clock (9:00) A.M. to six o'clock (6:00) P.M.
Broadway	Southerly	From Douglas Avenue to a point two hundred twenty four feet (224') easterly of Douglas Avenue	One (1) hour	Between the hours of nine o'clock (9:00) A.M. to six o'clock (6:00) P.M.
Cedar Street	Southerly	Main Street to El Camino Real	Two (2) hours	Between the hours of nine o'clock (9:00) A.M. to six o'clock (6:00) P.M.
Charter Street	Northerly	Hancock to El Camino Real	Two (2) hours	Between the hours of nine o'clock (9:00) A.M. to six o'clock (6:00) P.M.
Clinton Street	Both	Brewster to Broadway	Two (2) hours	Between the hours of nine o'clock (9:00) A.M. to six o'clock (6:00) P.M.
Clinton Street	Easterly	Seventy five feet (75') northerly of Broadway	Two (2) hours	Between the hours of nine o'clock (9:00) A.M. to six o'clock (6:00) P.M.

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Edgewood Road	Both	El Camino Real to Wellesley Crescent	Two (2) hours	Between the hours of nine o'clock (9:00) A.M. to six o'clock (6:00) P.M.
El Camino Real	Southwesterly	James Avenue to a point eighty feet (80') northwesterly from the center line of Harrison Avenue	Two (2) hours	Between the hours of nine o'clock (9:00) A.M. to six o'clock (6:00) P.M.
El Camino Real	Southwesterly	From a point one hundred forty feet (140') southeasterly from the center line of Jefferson Avenue to Hazel Avenue	Two (2) hours	Between the hours of nine o'clock (9:00) A.M. to six o'clock (6:00) P.M.
El Camino Real	Northeasterly	James Avenue to a point one hundred seventy five feet (175') northwesterly from the center line of Jefferson Avenue	Two (2) hours	Between the hours of nine o'clock (9:00) A.M. to six o'clock (6:00) P.M.
El Camino Real	Northeasterly	From a point one hundred seventy five feet (175') southeasterly from the center line of Wilson Street to Charter Street	Two (2) hours	Between the hours of nine o'clock (9:00) A.M. to six o'clock (6:00) P.M.
El Camino Real	Southwesterly	Brewster Avenue to Whipple Avenue	Two (2) hours	Between the hours of nine o'clock (9:00) A.M. to six o'clock (6:00) P.M.
El Camino Real	Southwesterly	From a point one hundred forty three feet (143') southeasterly of Whipple Avenue to Brewster Avenue	Two (2) hours	Between the hours of nine o'clock (9:00) A.M. to six o'clock (6:00) P.M.
El Camino Real	Southwesterly	Whipple Avenue to a point one hundred forty three feet (143') southeasterly of Whipple Avenue	One (1) hour	between the hours of nine o'clock (9:00) A.M. to twelve o'clock (12:00) A.M. midnight.
El Camino Real	Southwesterly	Edgewood Road to Claremont Street	Two (2) hours	Between the hours of nine o'clock (9:00) A.M. to six o'clock (6:00) P.M.
Euclid Avenue	Westerly	From Upton Street to a point two hundred ten feet (210') southerly of Upton Street	Two (2) hours	Between the hours of nine o'clock (9:00) A.M. to six o'clock (6:00) P.M.
Harrison Avenue	Northerly	El Camino Real to Adams	Two (2) hours	Between the hours of nine o'clock (9:00) A.M. to six o'clock (6:00) P.M.
Heller Street	Westerly	From Laurel Street to one hundred twenty five feet (125') southerly of Laurel Street	One (1) hour	Between the hours of nine o'clock (9:00) A.M. to six o'clock (6:00) P.M.
Hess Road	Both	From Woodside Road to one hundred fifty feet (150') northwesterly of Woodside Road	Two (2) hours	Between the hours of nine o'clock (9:00) A.M. to six o'clock (6:00) P.M.
Hopkins Avenue	Both	El Camino to Arch Street	Two (2) hours	Between the hours of nine o'clock (9:00) A.M. to six o'clock (6:00) P.M.
Jefferson Avenue	Northwesterly	From a point two hundred ten feet (210') northeasterly from the center line of El Camino Real to Franklin Street	Two (2) hours	Between the hours of nine o'clock (9:00) A.M. to six o'clock (6:00) P.M.
Jefferson Avenue	Southeasterly	From a point one hundred forty five feet (145') southwesterly from the center line of El Camino Real to Adams Street	Two (2) hours	Between the hours of nine o'clock (9:00) A.M. to six o'clock (6:00) P.M.
Lathrop Street	Both	Chestnut Street to El Camino Real	Two (2) hours	Between the hours of nine o'clock (9:00) A.M. to six o'clock (6:00) P.M.
Madison Avenue	Southerly	Seventy five feet (75') westerly of El Camino Real	Two (2) hours	Between the hours of nine o'clock (9:00) A.M. to six o'clock (6:00) P.M.
Main Street	Both	Maple to Beech	One (1) hour	Between the hours of nine o'clock (9:00) A.M. to six o'clock (6:00) P.M.
Main Street	Both	Chestnut Street to El Camino Real	Two (2) hours	Between the hours of nine o'clock (9:00) A.M. to six o'clock (6:00) P.M.
Veterans Boulevard	Southwesterly	Brewster Avenue to Convention Way	Two (2) hours	Between the hours of nine o'clock (9:00) A.M. to six o'clock (6:00) P.M.
Veterans Boulevard	Easterly	From Convention Way to Brewster Avenue	Two (2) hours	Between the hours of nine o'clock (9:00) A.M. to six o'clock (6:00) P.M

Atty/Ord/Ord.242
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Whipple Avenue	Northerly	Stafford Street to Arguello Street, except on which parking is prohibited during all or any specific hours	Two (2) hours	Between the hours of nine o'clock (9:00) A.M. to six o'clock (6:00) P.M.
Whipple Avenue	Both	El Camino Real to Arch Street, except on which parking is prohibited during all or any specific hours	Two (2) hours	Between the hours of nine o'clock (9:00) A.M. to six o'clock (6:00) P.M.
Whipple Avenue	Northerly	From Upland Road two hundred thirty feet (230') easterly thereof	Two (2) hours	Between the hours of nine o'clock (9:00) A.M. to six o'clock (6:00) P.M.
Wilson Street	Southerly	El Camino Real to Franklin Street	Two (2) hours	Between the hours of nine o'clock (9:00) A.M. to six o'clock (6:00) P.M.

2. Division 4 of Chapter 20, Article VII is hereby amended in its entirety to read as follows:

DIVISION 4. PARKING METER ZONES

Sec. 20.115. MANNER OF ESTABLISHING PARKING METER ZONES: Parking meter zones in streets, public rights-of-way, and publicly controlled off-street parking facilities rates and regulations for use therein shall be as established in this Division.

Sec. 20.116. ESTABLISHMENT OF DOWNTOWN METER ZONE: The Downtown Meter Zone is hereby established and is described as follows:

That certain area of the City of Redwood City, County of San Mateo, State of California, bounded by the following described line:

Commencing at the point where the centerline of Brewster Avenue intersects with the northeasterly edge of the Veterans Boulevard right-of-way, extending along the centerline of Brewster Avenue to the southerly edge of the Broadway right-of-way; extending along the southerly edge of the Broadway right-of-way to the centerline of El Camino Real; extending along the centerline of the El Camino Real to the centerline of James Avenue; extending along the centerline of James Avenue to the centerline of the Southern Pacific Railroad; extending along the centerline of the Southern Pacific Railroad to the westerly edge of the Maple Street right-of-way; extending along the westerly edge of the Maple Street right-of-way to the centerline of Stambaugh Street; extending along the centerline of Stambuagh Street to the westerly edge of the Walnut Street right-of-way, extending along the westerly edge of the Walnut Street right-of-way to the southerly edge of the Broadway right-of-way; extending along the southerly edge of the Broadway right-of-way to the centerline of Beech Street; extending along the centerline of Beech Street to the northerly edge of the Broadway right-of-way; extending along the northerly edge of the Broadway right-of-way to the centerline of Maple Street; extending along the centerline of Maple Street to the northerly edge of the Veterans

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Boulevard right-of-way; extending along the northerly edge of the Veterans Boulevard right-of-way to the point of commencement.

Sec. 20.117. ESTABLISHMENT OF DOWNTOWN METER ZONE BASE METER RATES FOR ON-STREET PARKING AREAS: Under the authority of California Vehicle Code section 22508, the City Council hereby establishes the following Base Meter Rates for the following on-street parking areas within the Downtown Meter Zone:

			Base Meter Rate (Per Hour)	
Street	**Side**	**Limits**	**Monday through Friday, 10:00am to 6:00pm**	**Monday through Friday, 6:00pm to 10pm; and Saturday through Sunday, 10:00am until 10:00pm**
Allerton Street	Southwesterly	Brewster Avenue to Fuller Street	$0.25	Free
Allerton Street	Northeasterly	Brewster Avenue to Fuller Street	$0.25	Free
Allerton Street	Southwesterly	Fuller Street to Bradford Street	$0.25	Free
Allerton Street	Northeasterly	Fuller Street to Bradford Street	$0.25	Free
Arch Street	Southwesterly	Brewster Avenue to Broadway	$0.25	Free
Arch Street	Northeasterly	Brewster Avenue to Broadway	$0.25	Free
Arguello Street	Southwesterly	Brewster Avenue to Marshall Street	$0.25	Free
Arguello Street	Northeasterly	Fuller Street to Bradford Street	$0.25	Free
Arguello Street	Northeasterly	Bradford Street to Marshall Street	$0.25	Free
Arguello Street	Northeasterly	Marshall Street to Broadway	$0.50	$0.75
Bradford Street	Northwesterly	Arguello Street to Warren Street	$0.25	Free
Bradford Street	Southeasterly	Arguello Street to Warren Street	$0.25	Free
Bradford Street	Northwesterly	Warren Street to Allerton Street	$0.25	Free
Bradford Street	Southeasterly	Warren Street to Allerton Street	$0.25	Free
Bradford Street	Northerly	Middlefield Road to Jefferson Avenue	$0.25	Free
Bradford Street	Southerly	Middlefield Road to Jefferson Avenue	$0.25	Free
Bradford Street	Northerly	Jefferson Avenue to Main Street	$0.25	Free
Bradford Street	Southerly	Jefferson Avenue to Main Street	$0.25	Free
Bradford Street	Northerly	Main Street to Walnut Street	$0.50	Free
Bradford Street	Southerly	Main Street to Walnut Street	$0.50	Free
Broadway	Northerly	Arch Street to El Camino Real	$0.25	Free
Broadway	Southerly	Arch Street to El Camino Real	$0.25	Free
Broadway	Northerly	El Camino Real to Perry Street	$0.50	$0.75
Broadway	Southerly	El Camino Real to California Street	$0.50	$0.75
Broadway	Northerly	Arguello Street to Winslow Street	$0.50	$0.75
Broadway	Southerly	Arguello Street to Winslow Street	$0.50	$0.75
Broadway	Northerly	Winslow Street to Hamilton Street	$0.50	$0.75
Broadway	Southerly	Winslow Street to Hamilton Street	$0.50	$0.75
Broadway	Northerly	Hamilton Street to Middlefield Road	$0.50	Free
Broadway	Northerly	Middlefield Road to Jefferson Avenue	$0.50	$0.75
Broadway	Southerly	Middlefield Road to Jefferson Avenue	$0.50	Free
Broadway	Northerly	Jefferson Avenue to Main Street	$0.50	$0.75
Broadway	Southerly	Jefferson Avenue to Main Street	$0.50	$0.75

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Broadway	Northerly	Maple Street to Beech Street	$0.25	Free
Broadway	Southerly	Cassia Street to Beech Street	$0.25	Free
California Street	Westerly	Broadway to Winklebleck Street	$0.50	Free
California Street	Easterly	Broadway to Winklebleck Street	$0.50	Free
California Street	Westerly	Winklebleck Street to James Street	$0.25	Free
California Street	Easterly	Winklebleck Street to James Street	$0.25	Free
El Camino Real	Northeasterly	Brewster Avenue to Broadway	$0.25	Free
El Camino Real	Southwesterly	Brewster Avenue to Broadway	$0.25	Free
El Camino Real	Northeasterly	Winklebleck Street to James Street	$0.25	Free
Fuller Street	Northwesterly	Warren Street to Allerton Street	$0.25	Free
Fuller Street	Southeasterly	Warren Street to Allerton Street	$0.25	Free
Fuller Street	Northwesterly	Allerton Street to Winslow Street	$0.25	Free
Fuller Street	Southeasterly	Allerton Street to Winslow Street	$0.25	Free
Hamilton Street	Westerly	Marshall Street to Broadway	$0.50	$0.50
Hamilton Street	Easterly	Marshall Street to Broadway	$0.50	$0.50
Hamilton Street	Westerly	Broadway to Winslow Street	$0.50	$0.50
Hamilton Street	Easterly	Broadway to Winslow Street	$0.50	$0.50
Jefferson Avenue	Easterly	Veterans Boulevard to Bradford Street	$0.25	Free
Jefferson Avenue	Westerly	Veterans Boulevard to Bradford Street	$0.25	Free
Jefferson Avenue	Easterly	Bradford Street to Marshall Street	$0.25	Free
Jefferson Avenue	Westerly	Bradford Street to Marshall Street	$0.25	Free
Jefferson Avenue	Easterly	Marshall Street to Broadway	$0.50	$0.50
Jefferson Avenue	Westerly	Marshall Street to Broadway	$0.50	$0.50
Jefferson Avenue	Easterly	Broadway to Middlefield Road	$0.50	$0.75
Jefferson Avenue	Westerly	Broadway to Middlefield Road	$0.50	$0.75
Main Street	Easterly	Bradford Street to Marshall Street	$0.25	Free
Main Street	Westerly	Bradford Street to Marshall Street	$0.25	Free
Main Street	Easterly	Marshall Street to Broadway	$0.50	$0.50
Main Street	Westerly	Marshall Street to Broadway	$0.50	$0.50
Main Street	Easterly	Stambaugh Street to Middlefield Road	$0.50	$0.50
Main Street	Easterly	Broadway to Stambaugh Street	$0.50	$0.50
Main Street	Westerly	Broadway to Middlefield Road	$0.50	$0.50
Maple Street	Northwesterly	Marshall Street to Broadway	Free	Free
Marshall Street	Northwesterly	Arguello Street to Warren Street	$0.25	Free
Marshall Street	Northwesterly	Warren Street to Winslow Street	$0.25	Free
Marshall Street	Southeasterly	Arguello Street to Winslow Street	$0.25	Free
Marshall Street	Southerly	Winslow Street to Hamilton Street	$0.25	Free
Marshall Street	Northerly	Hamilton Street to Middlefield Road	$0.25	Free
Marshall Street	Southerly	Hamilton Street to Middlefield Road	$0.25	Free
Marshall Street	Northerly	Middlefield Road to Jefferson Avenue	$0.25	Free
Marshall Street	Southerly	Middlefield Road to Jefferson Avenue	$0.25	Free
Marshall Street	Northerly	Main Street to Walnut Street	$0.25	Free
Marshall Street	Southerly	Spring to Walnut Street	$0.25	Free
Marshall Street	Southerly	Walnut Street to Maple Street	$0.25	Free
Marshall Street	Northerly	Walnut Street to Marshall Court	$0.25	Free

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Marshall Street	Northerly	Marshall Court to Maple Street	$0.25	Free
Middlefield Road	Easterly	Veterans Boulevard to Bradford Street	$0.25	Free
Middlefield Road	Westerly	Veterans Boulevard to Bradford Street	$0.25	Free
Middlefield Road	Easterly	Bradford Street to Marshall Street	$0.25	Free
Middlefield Road	Westerly	Bradford Street to Marshall Street	$0.25	Free
Middlefield Road	Easterly	Marshall Street to Broadway	$0.50	$0.50
Middlefield Road	Westerly	Marshall Street to Broadway	$0.50	$0.50
Middlefield Road	Westerly	Broadway to Winslow Street	$0.50	$0.75
Middlefield Road	Northeasterly	Winslow Street to Jefferson Avenue	$0.50	$0.75
Middlefield Road	Northeasterly	Jefferson Avenue to Main Street	$0.50	$0.50
Perry Street	Southwesterly	Brewster Avenue to Commercial Way	$0.25	Free
Perry Street	Southwesterly	Commercial Way to Broadway	$0.50	$0.50
Stambaugh Street	Northeasterly	Main Street to Maple Street	$0.25	Free
Stambaugh Street	Southwesterly	Main Street to Maple Street	$0.25	Free
Veterans Boulevard	Northeasterly	Brewster Street to Main Street	Free	Free
Veterans Boulevard	Southwesterly	Brewster Street to Middlefield Road	Free	Free
Veterans Boulevard	Southwesterly	Middlefield Road to Jefferson Avenue	Free	Free
Veterans Boulevard	Southerly	Walnut Street to Maple Street	$0.25	Free
Veterans Boulevard	Northerly	Walnut Street to Maple Street	Free	Free
Walnut Street	Westerly	Veterans Boulevard to Bradford Street	$0.50	Free
Walnut Street	Westerly	Bradford Street to Marshall Street	$0.50	Free
Walnut Street	Easterly	Veterans Boulevard to Marshall Street	$0.50	Free
Walnut Street	Easterly	Marshall Street to Spring Street	$0.25	Free
Walnut Street	Westerly	Marshall Street to Spring Street	$0.25	Free
Walnut Street	Westerly	Broadway to Spring	$0.25	Free
Warren Street	Northeasterly	Brewster Avenue to Fuller Street	$0.25	Free
Warren Street	Southwesterly	Brewster Avenue to Fuller Street	$0.25	Free
Warren Street	Northeasterly	Fuller Street to Bradford Street	$0.25	Free
Warren Street	Southwesterly	Fuller Street to Bradford Street	$0.25	Free
Warren Street	Northeasterly	Bradford Street to Marshall Street	$0.25	Free
Warren Street	Southwesterly	Bradford Street to Marshall Street	$0.25	Free
Winklebleck Street	Southerly	El Camino Real to California Street	$0.50	Free
Winklebleck Street	Northerly	El Camino Real to California Street	$0.50	Free
Winslow Street	Easterly	Brewster Avenue to Bradford Street	$0.25	Free
Winslow Street	Westerly	Brewster Avenue to Fuller Street	$0.25	Free
Winslow Street	Westerly	Fuller Street to Bradford Street	$0.25	Free
Winslow Street	Westerly	Bradford Street to Marshall Street	$0.25	Free
Winslow Street	Easterly	Marshall Street to Broadway	$0.50	$0.50
Winslow Street	Westerly	Marshall Street to Broadway	$0.50	$0.50
Winslow Street	Easterly	Broadway to Hamilton Street	$0.50	$0.50
Winslow Street	Westerly	Broadway to Hamilton Street	$0.50	$0.50

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Sec. 20.118. ESTABLISHMENT OF DOWNTOWN METER ZONE BASE METER RATES FOR SPECIFIED OFF-STREET PARKING AREAS: The following base meter rates are hereby established for certain off-street parking areas:

		Base Meter Rate	
Parking Facility	**Description of Location**	**Monday through Friday, 10:00am to 6:00pm**	**Monday through Friday, 6:00pm to 10pm; and Saturday through Sunday, 10:00am until 10:00pm**
Library Parking Lot "A"	Located southwesterly of the intersection of Main Street with Middlefield Road	$0.50	$0.50
Library Parking Lot "B"	Located southeasterly of the intersection of Jefferson Avenue with Middlefield Road	$0.50	$0.50
City Hall Parking Lot	Located at the east side of City Hall, near the rear entry thereof, 1017 Middlefield Road	$0.75	$0.75
Winslow Street Parking Lot	Located northwesterly of the intersection of Winslow Street with Hamilton Street	$0.25	$0.25
Perry Street Parking Lot	Located northwesterly of the intersection of Perry Street with Commercial Way	$0.50	$0.50
Main Street Parking Lot	Located at the southerly of Broadway, between Main Street and Jefferson Avenue, and northeasterly of City Hall, 1017 Middlefield Road	$0.25	$0.25

Sec. 20.119. ESTABLISHMENT OF DOWNTOWN METER ZONE BASE METER RATES FOR SPECIFIED OFF-STREET PARKING AREAS: The following base meter rates are hereby established for certain off-street parking areas:

Parking Facility	**Description of Location**	**Peak Hours**	**Hourly Rate For Peak Hours**	**Base Hourly Rate For Non-Peak Hours**
Jefferson Avenue Garage	Located southwesterly of the intersection of Broadway with Jefferson Avenue	Monday through Thursday, 5:00pm until closing, but no later than 3:00am; Friday, from 12:00pm until closing, but no later than 3:00am; and Saturdays, Sundays, and holidays from opening until closing, but no later than 3:00am.	$5.00	$0.25
Middlefield Road Parking Lot	Located westerly of the intersection of Middlefield Road and Jefferson Avenue	Monday through Thursday, 5:00pm until closing, but no later than 3:00am; Friday, from 2:00pm until closing, but no later than 3:00am; and Saturdays, Sundays, and holidays, from opening until closing, but no later than 3:00am.	$5.00	$0.25
Marshall Street Garage	Located southerly of Marshall Street, between Jefferson Avenue and Main Street	Monday through Friday, 5:00pm until closing, but no later than 3:00am; and Sundays, and holidays from opening until closing, but no later than 3:00am	$5.00	$0.25

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Sec. 20.120. PERIODIC ADJUSTMENT OF DOWNTOWN METER ZONE METER RATES: Under the authority of California Vehicle Code section 22508, the City Council hereby adopts the following process for adjusting Downtown Meter Zone meter rates from time to time to manage the use and occupancy of the parking spaces for the public benefit in all parking areas within the Downtown Meter Zone.

A. To accomplish the goal of managing the supply of parking and to make it reasonably available when and where needed, a target occupancy rate of eighty-five percent (85%) is hereby established.

B. At least annually and not more frequently than quarterly, the Parking Manager shall survey the average occupancy for each parking area in the Downtown Meter Zone that has parking meters. Based on the survey results, the Parking Manager shall adjust the rates up or down in twenty-five cent ($0.25) intervals to seek to achieve the target occupancy rate. The base parking meter rate, and any adjustments to that rate made pursuant to this ordinance, shall become effective upon the programming of the parking meter for that rate. A current schedule of meter rates shall be available at the City Clerk's office.

C. The hourly meter rate shall not exceed one dollar and fifty cents ($1.50) without the express approval of the City Council.

D. This Section does not apply to the parking facilities described in Section 20.119 of this Division during the "peak hours."

Sec. 20.121. USE OF DOWNTOWN METER ZONE PARKING METER REVENUES: Revenues generated from on-street and off-street parking within the Downtown Meter Zone boundaries shall be accounted for separately from other City funds and may be used only for the following purposes:

A. All expenses of administration of the parking program

B. All expenses of installation, operation and control of parking equipment and facilities within or designed to serve the Downtown Meter Zone

C. All expenses for the control of traffic (including pedestrian and vehicle safety, comfort and convenience) which may affect or be affected by the parking of vehicles in the Downtown Meter Zone, including the enforcement of traffic regulations as to such traffic.

D. Such other expenditures within or for the benefit of the Downtown Meter Zone as the City Council may, by resolution, determine to be legal and appropriate.

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Sec. 20.122. ACQUISITION, INSTALLATION, MAINTENANCE, REGULATION, OF METERS; ROLE OF CITY MANAGER: The City Manager is hereby directed to provide for the purchase, acquiring, installation, operation, maintenance, supervision, regulation and use of the parking meters provided for in this Division and to maintain the meters in good workable condition.

Sec. 20.123. LOCATION AND OPERATION OF METERS:
A. Conventional parking meters installed in a parking meter zone shall be placed immediately adjacent to individual parking places described in the following section and shall be placed on the curb or sidewalk if the parking place is adjacent to a curb or sidewalk. Each conventional parking meter shall be arranged so that upon the expiration of the time period for which payment was deposited it will indicate by a proper visible signal that the lawful parking period for the adjacent parking meter space has expired and in such cases the right of such a vehicle to occupy the space shall cease.

B. Each pay-by-space machine, pay-and-display machine, or pay-on-foot machine shall conspicuously display the applicable parking rates and instructions for use of the machine. Each pay-by-space or pay-and-display machine shall, upon the deposit of the appropriate United States coins, currency, credit card, or city prepaid parking card with respect to a parking meter space controlled thereby, dispense a receipt showing the amount of time purchased and when the lawful parking period will expire for that space. Upon expiration of the lawful parking period, the right of a vehicle to occupy the space shall cease.

Sec. 20.124. MARKING OF INDIVIDUAL PARKING SPACES; VEHICLES TO BE PARKED WITHIN MARKED LINES: The City Manager shall have lines or markings painted or placed upon the curb, right of way or parking lot adjacent to each parking meter for the purpose of designating the parking space for which the parking meter is to be used. Spaces regulated by pay-by-space machines shall be assigned numbers, which shall be clearly painted onto the curb next to each such space. It shall be unlawful and a violation of this Division to park any vehicle across any such line or marking or to park the vehicle in such position that the same shall not be entirely within the area so designated by such lines or markings.

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Sec. 20.125. MANNER OF PARKING IN SPACES PARALLEL TO CURB: When a parking space in any parking meter zone is parallel with the adjacent curb or sidewalk and is regulated by a conventional parking meter, any vehicle parked in such parking space shall be parked with the foremost part of such vehicle nearest to such meter.

Sec. 20.126. USE OF METER REQUIRED:
A. When a vehicle is parked in any space controlled by a conventional parking meter or a pay-by-space machine and payment is required pursuant to Sections 20.117, 20.118, or 20.119, the operator of the vehicle shall upon entering the parking space, immediately purchase time by depositing coins indicated on such meter or by depositing other forms of payment which may be accepted at pay-by-space and pay-and-display machines such as dollar bills, credit cards, or prepaid city parking card as specified on such machines. Failure to put the meter in operation by purchasing time, and (if applicable) failure to place the receipt on the vehicle dashboard as prescribed, shall constitute a violation of this Division.

B. When a vehicle is parked in any space controlled by a pay-and-display machine and payment is required pursuant to Sections 20.117, 20.118, or 20.119, the operator of the vehicle shall upon entering the parking space, immediately purchase time by depositing coins indicated on such meter or by depositing other forms of payment which may be accepted at pay-by-space and pay-and-display machines such as dollar bills, credit cards, credit cards, or prepaid city parking card as specified on such machines. The operator of the vehicle shall immediately cause the parking receipt provided by the machine to be placed face up on the driver's side dashboard of the vehicle. Failure to put the meter in operation by purchasing time, and (if applicable) failure to place the receipt on the vehicle dashboard as prescribed, shall constitute a violation of this Division. Upon the deposit of payment and placing such meter in operation, the parking space may be lawfully occupied by such vehicle for the time indicated by the meter.

C. When a vehicle is parked in any space controlled by a pay-on-foot machine and payment is required pursuant to Sections 20.117, 20.118, or 20.119, the operator of the vehicle shall upon entering the parking facility, press the specified button at the gate to receive a voucher. Prior to departure from the facility, the operator of the vehicle shall deposit the voucher into the pay-on-foot machine and shall pay for the time used by depositing the amount of money specified by the machine in a form of payment which may be accepted at the machine such as coins, dollar bills, credit cards, or prepaid city parking card as specified on such machines. Failure to remove vehicle from the parking facility within fifteen

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(15) minutes of payment shall constitute a violation of this Division. Failure to pay for time used shall constitute a violation of this Division.

Sec. 20.127. INJURING OR TAMPERING WITH METERS: It shall be unlawful and a violation of the provisions of this Division for any person to deface, injure, tamper with, open or willfully break, destroy or impair the usefulness of any parking meter installed under the provisions of this Division or post supporting such parking meter.

Sec. 20.128. USE OF SLUGS AND SIMILAR DEVICES PROHIBITED: It shall be unlawful and a violation of the provisions of this Division to deposit or cause to be deposited in any parking meter any slugs, device or metallic substance, or any other substitute for any of the coins or other payment types specified in Section 20.123.

Sec. 20.129. OVERTIME PARKING: If the vehicle shall remain parked in any such parking space beyond the time for which payment has been made, the parking meter shall indicate such illegal parking and in that event, such vehicle shall be considered as parked overtime and beyond the period of legal parking time and the parking of a vehicle overtime or beyond the period of legal parking time in any such part of a street where any such meter is located shall be a violation of this Division.

It shall be unlawful and a violation of the provisions of this Division for any person to cause, allow, permit or suffer any vehicle registered in the name of, or operated by such person to be parked overtime or beyond the period of legal parking time established for any parking meter zone.

Sec. 20.130. PARKING OR REMAINING ADJACENT TO EXPIRED METER: It shall be unlawful and a violation of the provision of this Division for any person to permit any vehicle to remain or be placed in any parking space adjacent to any parking meter while the meter is displaying a signal indicating that the vehicle occupying such parking space has already been parked beyond the period of time prescribed for such parking space.

Sec. 20.131. DUTY OF POLICE WHERE VEHICLE PARKED OVERTIME; ISSUANCE OF CITATION: It shall be the duty of each police officer or parking enforcement deputy to take the number of any meter at which any vehicle is over-parked, as provided in Section 20.124; the state vehicle license of such vehicle; the time and date of such over-parking, and make of such vehicle; and issue, in writing, a citation for illegal parking in the same form and subject to the same procedure provided for by the laws of the State applicable to the traffic violations within the City.

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Sec. 20.132. PAYMENT OF FINE TO AVOID PROSECUTION: Any operator or owner of a vehicle to whom a citation has been issued in accordance with the preceding section may, within fifteen (15) days of the time of the issuance of such citation, pay to the appropriate court, as a penalty for and full consideration of such violation, the sum of twenty-five dollars ($25.00). The mailing, in a sealed envelope properly addressed through the United States mail, of a check, money order, or postal order, within fifteen (15) days from the time of issuance of the citation, or notice of such violation, or the deposit at the City Hall of the sum of twenty-five dollars ($25.00) within fifteen (15) days constitutes a compliance with this provision. Delivery of such envelope shall be the responsibility of such owner or operator. The failure of such owner or operator to make such payment within the fifteen (15) days shall render such owner or operator subject to the penalties provided for violation of the provisions of this Division.

Sec. 20.133. PROVISIONS FOR TEMPORARY SUSPENSION OF METER RATES: The provisions of Division may be suspended from time to time by motion of the City Council in any case where the Council finds that strict compliance would not serve the public interest, including but not limited to the use of public streets and sidewalks for celebrations, special public events, celebration of holiday seasons and any other such activity or purpose as the City Council in its sole discretion shall determine.

Sec. 20.134. DEFINITIONS: For the purposes of this Division the following words and phrases shall have the meanings respectively ascribed to them by this Section:

OPERATOR: Every individual who shall operate a vehicle as the owner thereof or as the agent, employee or permittee of the owner.

PARKING MANAGER: The person so designated by the City Manager to, among other responsibilities, monitor the occupancy of parking areas and adjust meter rates according to the provisions of Division 4.

PARKING METER: Any mechanical device which accepts payment for the use of parking spaces as described in this Division. Such mechanical devises shall include but not be limited to conventional parking meters, pay-by-space machines, pay-and-display machines, and pay-on-foot machines.

STREET: Any public street, avenue, road, boulevard, highway or other public place located in the City and established for the use of vehicles.

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VEHICLE: Any device in, upon or by which any person or property is, or may be transported upon a street or highway, except a device which is operated upon rails or tracks.

Sec. 20.135--20.149. RESERVED

3. Division 5 of Chapter 20, Article VII is hereby amended in its entirety to read as follows:

DIVISION 5. PARKING PERMITS

Sec. 20.150. ISSUANCE; FEE:

A. The City Manager is hereby authorized to issue parking permits to the public in accordance with the following schedule and subject to the payment of the following fees:

Permit Type	Valid Area	Valid Times	Monthly Cost	Yearly Cost
Marshall/Middlefield Bronze Permit	Marshall Street Garage and Middlefield Parking Lot	Valid in Middlefield Parking Lot Monday through Friday, from the time at which meters begin operation until 7:00pm; valid in Marshall Street Garage Monday through Friday, from the time at which meters begin operation until 7:00pm	$30.00	$330.00
Marshall/Middlefield Silver Permit	Marshall Street Garage and Middlefield Parking Lot	Valid in Middlefield Parking Lot Monday through Friday, from the time at which meters begin operation until 7:00pm; valid in Marshall Street Garage Monday through Friday, all hours	$35.00	$385.00
Marshall/Middlefield Gold Permit	Marshall Street Garage and Middlefield Parking Lot	Valid in Middlefield Parking Lot Monday through Friday, from the time at which meters begin operation until 7:00pm; valid in Marshall Street Garage at all times	$40.00	$440.00
Perry/Winslow/Main Bronze Permit	Perry Street Parking Lot, Winslow Street Parking Lot, and Main Street Parking Lot	Monday through Friday, from the time at which meters begin operation until 7:00pm	$40.00	$440.00
Perry/Winslow/Main Silver Permit	Perry Street Parking Lot, Winslow Street Parking Lot, and Main Street Parking Lot	Monday through Friday, all hours	$50.00	$550.00
Perry/Winslow/Main Gold Permit	Perry Street Parking Lot, Winslow Street Parking Lot, and Main Street Parking Lot	All times	$60.00	$660.00
Library Parking Lot "C" Gold Permit	Library Parking Lot "C"	All times	$20.00	$220.00

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B. The City Manager is hereby authorized to issue parking permits, without charge, to City employees, officers, volunteers, and visitors as follows:

Permit Type	Valid Area	Valid Times
"C.E." Permit	Library Parking Lot "B" and Library Parking Lot "C"	Valid in Library Parking Lot "B" on Mondays through Fridays, from the time which meters begin operation until 6:00pm; valid in Library Parking Lot "C" at all times
"C.O." Permit	Main Street Parking Lot	All times
City Hall Visitor Permit	City Hall Parking Lot	All times, with the exception that such permits shall be of a temporary nature and shall only be valid on they day during which they were issued.

C. In order to ensure orderly and efficient use of the parking supply, the City Manager is authorized to limit the number of permits which may be issued, in which case priority shall be based on the order in which requests for such permits are received.

D. The City Manager is authorized to collect deposits, require the submission of application forms, and to establish other administrative procedures for the parking permit program as may be necessary from time to time.

Sec. 20.151. FORM: The parking permit may consist of a windshield card or may be in such other form as the City Manager may prescribe.

Sec. 20.152. PAYMENT OF FEE IN ADVANCE; PRORATION; REFUNDS: Payment shall be made to the City in advance on an annual calendar year basis for an annual permit, or on a calendar month basis for a monthly permit. The fee payable for a monthly permit purchased after the sixteenth of the month shall be one-half (1/2) the monthly fee established by resolution of the City Council. The fee payable for an annual permit shall be the fee established by resolution of the City Council, which amount shall be prorated on a monthly basis for issuance thereof after January 1 of any year; provided, however, during the last two (2) months of each calendar year monthly permits only may be purchased.

Sec. 20.153. DISPLAY WHERE VISIBLE; RELIEF FROM PAYMENT OF METER FEES: When a windshield card parking permit is placed so as to be clearly legible through the windshield of a vehicle, the operator thereof shall be relieved of the obligation of putting the meter, pay-by-space machine, or pay-and-display machine in operation by the deposit of money therein during the time periods for which such permit is valid. If the permit is not so visible, the vehicle and operator shall be subject to the provisions of Division 4 of this Article. If the permit is visible but is used during periods for which it is not valid or in a manner for which it is not valid as established by this Division, the vehicle and operator shall be subject to the provisions of Division 4 of this Article.

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Secs. 20.154 -20.159. RESERVED:

4. Division 9 of Chapter 20, Article VII is hereby amended in its entirety to read as follows:

DIVISION 9. REGULATED, UNMETERED OFF-STREET PARKING FACILITIES

Sec. 20.184. REGULATED, UNMETERED OFF-STREET PARKING FACILITIES DESIGNATED: The following off-street parking facilities, owned or operated by the City, are hereby designated as regulated, unmetered off-street parking facilities:

A. Police Department Parking Lot, located at the front, unenclosed area, of the Police Department building, 1301 Maple Street.

B. Municipal Services Center Parking Lot, 1300 Broadway.

C. Library Parking Lot "C," located directly behind and southerly of the Main Library branch, 1044 Middlefield Road.

The City Manager shall cause parking spaces to be designated and shall cause appropriate signs to be posted, and markings to be made, in all regulated, unmetered off-street parking facilities designated in this Section.

Sec. 20.185. PERMITS ISSUED: The City Manager is hereby authorized to issue parking permits for use in regulated unmetered off-street parking facilities in accordance with such rates and regulations as shall be established by resolution of the City Council.

The parking facility permit may consist of a windshield card or may be in such other form as the City Manager may prescribe.

Sec. 20.186. PERMIT OR CITY IDENTIFICATION REQUIRED:
A. It shall be unlawful for any person to permit any vehicle to occupy or remain in any space in the Police Department Parking Lot for more than one hour, except on Sundays and holidays, when signs are erected giving notice thereof, unless such vehicle displays a valid parking permit or said vehicle bears distinctive markings, or logo, or sign (collectively, "City identification") identifying said vehicle as City-owned or as an otherwise duly designated City vehicle.

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B. It shall be unlawful for any person to permit any vehicle to occupy or remain in any space in the Municipal Services Center parking lot for more than one hour, except on Sundays and holidays, when signs are erected giving notice thereof, unless such vehicle displays a valid parking permit or said vehicle bears distinctive markings, or logo, or sign (collectively, "City identification") identifying said vehicle as City-owned or as an otherwise duly designated City vehicle.

C. It shall be unlawful for any person to permit any vehicle to occupy or remain in any space in the Library Parking Lot "C" unless such vehicle displays a valid parking permit or said vehicle bears distinctive markings, or logo, or sign (collectively, "City identification") identifying said vehicle as City-owned or as an otherwise duly designated City vehicle.

Sec. 20.187. DISPLAY OF PERMIT: Windshield card permits shall be placed so as to be clearly legible through the windshield of a vehicle parked in a regulated unmetered parking facility.

Sec. 20.188. NO PARKING AREAS: It shall be unlawful for any person to permit any vehicle to occupy or remain in, or adjacent to, any area marked or posted by signs for no parking, or parking prohibited, or adjacent to any curb painted red, as so designated by the City Manager in any off-street parking facility described in Section 20.184, or in any turnaround circle or other traffic circulation portion of said facility so designated

Sec. 20.189. VEHICLES TO BE PARKED WITHIN LINES: It shall be unlawful and a violation of this Division to park any vehicle across lines designated parking spaces or to park a vehicle in such position that the same shall not be entirely within the area so designated by such lines.

Sec. 20.190. ISSUANCE OF CITATION: It shall be the duty of each police officer or parking enforcement deputy to take the designated name or description of the regulated unmetered parking facility at which any vehicle is parked in violation of Sections 20.186 through 20.189 of this Division; the state vehicle license of such vehicle; the time and date of such parking; and the make of such vehicle; and issue, in writing, a notice to appear (citation) for illegal parking in the same form and subject to the same procedures provided by the laws of the State applicable to traffic violations within the City.

Sec. 20.191. PAYMENT OF FINE TO AVOID PROSECUTION: Any operator or owner of a vehicle to whom a citation has been issued in accordance with the preceding section may, within fifteen (15) days of the time of the issuance of such citation, pay to the appropriate court, as a penalty for and full consideration of such violation, the sum of twenty-five dollars ($25.00) plus applicable surcharges established by resolution. The

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mailing, in a sealed envelope properly addressed through the United States mail, of a check, money order or postal order, within fifteen (15) days from the time of issuance of the citation, or notice of such violation, or the deposit with the court of the sum of twenty-five dollars ($25.00), plus applicable surcharges, within fifteen (15) days constitutes compliance with this provision. Delivery of such envelope shall be the responsibility of such owner or operator. The failure of such owner or operator to make such payment within the fifteen (15) days shall render such owner or operator subject to the penalties provided for violation of the provisions of this Division

Sec. 20.192--20.199. RESERVED

5. This ordinance shall take effect on February 1, 2006.

Atty/Ord/Ord.242
07/20/05

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3. Boca Raton Transportation Demand Management Ordinance

ORDINANCE NO. 4677

AN ORDINANCE OF THE CITY OF BOCA RATON RELATING TO TRANSPORTATION DEMAND MANAGEMENT IN
DOWNTOWN BOCA RATON, AS DEFINED HEREIN; CREATING A NEW DIVISION 8 OF CHAPTER 23, ARTICLE
IV, CODE OF ORDINANCES; REQUIRING EXISTING DEVELOPMENT, AS DEFINED HEREIN, IN DOWNTOWN
BOCA RATON TO PARTICIPATE IN TRANSPORTATION DEMAND MANAGEMENT PROGRAMS; PROVIDING FOR
THE SCOPE OF DIVISION 8; PROVIDING FOR DEFINITIONS; REQUIRING DEVELOPMENT, AS DEFINED HEREIN, IN DOWNTOWN BOCA RATON TO PARTICIPATE IN TRANSPORTATION DEMAND MANAGEMENT PROGRAMS;
REQUIRING A SWORN STATEMENT OF COMPLIANCE TO BE FILED BY PROPERTY OWNERS; REQUIRING ANNUAL REPORTS TO BE FILED BY PROPERTY OWNERS; PROVIDING FOR SEVERABILITY; PROVIDING FOR
REPEALER; PROVIDING FOR CODIFICATION; PROVIDING AN EFFECTIVE DATE

WHEREAS, the City Council of the City of Boca Raton has adopted certain goals, objectives, and policies in the City's Comprehensive Plan to protect and enhance the quality of life of the City; and

WHEREAS, Policy TRAN 1.3.9 of the Transportation Element of the Comprehensive Plan provides for the enactment of a transportation demand management ordinance to encourage the implementation of the programs to reduce trip generation and peak hour traffic; and

WHEREAS, the Downtown Development of Regional Impact Development Order, Ordinance No. 4035, requires the preparation of a transportation demand management program and its implementation by adoption of a transportation demand ordinance prior to the issuance of Certificates of Occupancy for more than one million five hundred thousand (1,500,000) square feet of office equivalents; and

WHEREAS, transportation demand management is a method of promoting the use of alternative modes of transportation other than the single occupant automobile; and

WHEREAS, transportation demand management is a way to influence driver behavior and habits to reduce peak hour trips; and

WHEREAS, transportation demand management is a means to modify the mode, frequency or route of work trip to relieve peak hour congestion; and

WHEREAS, transportation demand management is a means by which the City can enhance the quality and level of service on the City's thoroughfare roadway network; and

WHEREAS, transportation demand varies according to the location and character of land uses; and

WHEREAS, the City Council of the City of Boca Raton desires to implement a program of transportation demand management in Downtown Boca Raton to ensure that: the public health, safety, and general welfare standards are maintained; surrounding land, structures, persons and property are adequately protected; the adopted roadway level-of-service is maintained; trip generation and peak hour traffic are reduced; and public and private transportation is facilitated; and

WHEREAS, the City of Boca Raton intends to pursue implementation of transportation demand management by: (1) establishing a shuttle bus system connecting Downtown to the nearest Tri-Rail Station within 60 months of adoption of this ordinance; (2) establishing an intra-downtown shuttle/trolley system within 60 months of adoption of this ordinance; (3) surveying residents and employees in the Downtown in order to identify the type of transportation and circumstances under which residents and employees would use alternative modes of transportation for work related trips within 12 months of adoption of this ordinance; (4) establishing a remote parking operation for Downtown providing a shuttle between remote parking areas and the Downtown within 72 months of adoption of this ordinance; (5) adopting a Citywide Transportation Demand Management Program within 24 months of adoption of this ordinance; (6) investigating the possibility of incorporating zoning and land use programs to reduce peak period traffic into the new Citywide Transportation Demand Management Program; (7) encouraging all buildings with less than 50 employees to participate in Transportation Demand Management; and (8) pursuing funding for these projects through grants, bonds, special taxing districts, special assessments, developer contributions, or any other available funding sources; and

WHEREAS, this ordinance will implement a Transportation Demand Management Program in Downtown Boca Raton and protect and enhance the quality of life of the City of Boca Raton; now therefore THE City of Boca Raton Hereby ORDAINS:

Section 1. Division 8, Section 23-243 through 23-250, Article IV, Chapter 23, Code of Ordinances, is created to read:

Article IV. Development Regulations, Division 8, Transportation Demand Management.

Section 23-243. Scope of Division**.**
(1) This Division shall apply to development, as defined in the Downtown Development of Regional Impact Development Order, Ordinance No. 4035, within the boundaries of Downtown Boca Raton, which meets one or more of
the following criteria:
(a) Development or Existing Development which accommodates fifty (50) or more full time employees. Such 50 employee threshold shall be measured per Development or Existing Development, not per employer.
(b) Development or Existing Development which contains more than thirty (30) residential units; and
(c) Development or Existing Development which contains or will contain two or more uses which share common parking facilities.

Section 23-244**.** Definitions.
(1) The following words and phrases shall, for purposes of this Division, have the following meanings:

(a) “Bus Pool” shall mean subscription bus service between locations on a regular and prearranged basis responsive to commuter needs.
(b) “Car Pool” shall mean two (2) or more people traveling together on a continuing and prearranged common ownership, common phasing, common plan or lease basis in a private motor vehicle for the purposes of commuting to and from a place or places of employment.
(c) “Compressed Work Week” shall mean a limitation by an employer on the number of days worked during the week by increasing the hours worked each day. An example would be a 40-hour workweek of four ten-hour workdays.
(d) “Commuter Van Service” shall mean a transportation service provided in a multi-occupant vehicle which offers commuter service from a place of residence or its immediate vicinity to a place of employment or its immediate vicinity on an ongoing basis. For the purposes of this definition, immediate vicinity shall mean a distance of less than one thousand (1000) feet.
(e) “Development” shall mean any and all building activities, or material changes in the use or appearance of any structure or land, authorized pursuant to an Individual Development Approval approved after October 22, 2002.
(f) “Downtown Boca Raton” shall mean the area which is subject to the Downtown Development of Regional Impact Development Order, Ordinance No. 4035.
(g) “Existing Development” shall mean Development authorized pursuant to an Individual Development Approval approved or amended on or before October 22, 2002.
(h) “Flex Time” shall mean work schedules whereby employees choose their regular arrival and departure times within reasonable limits imposed by the employer.
(i) “Property Owner” shall mean the fee owner of any land on which Development or Existing Development is located.
(j) “Public Transit” shall mean publicly provided and regularly scheduled transportation, typically by bus or rail, or a combination of both.
(k) “Ride Matching” shall mean the process of identifying interested drivers and interested riders with other drivers and riders of similar interests, employment origins and destinations for purposes of sharing rides by car pooling, van pooling or other.
(l) “Ride Sharing” shall mean the transportation of persons in a motor vehicle where such transportation is incidental to another purpose of the driver. The term shall include ride-sharing arrangements known as car pools, van pools, and bus
pools.
(m) “Shared Shuttle” shall mean a vehicle that is owned by a group of businesses and used to transport employees from transit stop locations to places of employment.
(n) “Shuttle” shall mean a privately or publicly owned vehicle used to transport employees from transit stop locations to places of employment.
(o) “Staggered Work Hours” shall mean a situation where an employer varies work shifts for employees by staggering beginning and end times. For example, 20 employees work from 7:00 a.m. to 4:00 p.m. and another 40 employees work from 8:00 a.m. to 5:00 p.m., thereby reducing the number of trips arriving or leaving a place of employment at one time.
(p) “Telecommuting” shall mean the use of communication devices such as facsimile, modem, computer, or other machine to perform a minimum of 20% of an employee’s business activities at the employee’s home or employee’s satellite location without commuting to a principal place of employment.
(q) “Transit Subsidies” shall mean the provision of reimbursement or payment of transit fare (for example, tickets, tokens, or passes) to business occupants of a building to encourage use of public transit.
(r) “Transportation Demand Management Program” or "TDM Program" shall be a program comprised of one or more of the following program elements: bus pool, car pool, compressed work week, flex time, public transit, ride-matching, ride

sharing, shared shuttle, shower and locker facilities, shuttle, staggered work hours, telecommuting, transit subsidies or van pool. A TDM Program shall be any transportation demand management initiative or combination of initiatives which
create a realistic opportunity by which peak hour vehicle trip generation to and from the workplace will be reduced by twenty-five percent (25%).
(s) "Van Pool" shall mean five (5) or more people traveling together on a continuing and pre-arranged basis in a van-type or similar type vehicle.

Section 23-245**.** Transportation Demand Management Requirements.
(1) Development. The Property Owner of any Development within the scope of this Division pursuant to Section 23-243 shall:
(a) design driveways and parking areas to accommodate the use of vans and shuttle buses;
(b) provide a bus shelter or transit/bus pickup facility if the Development has frontage on any transit route unless the developer can demonstrate that a suitable facility is already available within 600 feet of the property on which the Development is located;
(c) provide reserved priority employee parking spaces for qualifying multiple occupant vehicles;
(d) provide facilities for the posting of TDM Program information in the location within the Development which is readily visible to employees;
(e) provide sheltered, secure facilities for storage of bicycles in accordance with the numerical requirements of Section 28-1655, Code of Ordinances. For the purpose of this Division, sheltered, secured facilities for the storage of bicycles shall mean an area which is covered and provides security by means of a locked gate or door or provides an area which is monitored to assure no theft or damage occurs to the bicycles; and (f) designate an individual to act as the development TDM Program Coordinator. This person will be the contact person between the Development and the City and shall monitor all TDM Program activities for the Development, disseminate information and act as a resource of information for employees.
(2) Existing Development and Development. The Property Owner of any Existing Development and Development within the scope of this Division pursuant to Section 23-243 shall:
(a) By October 22, 2004:
1. Provide facilities for the posting of TDM Program information in the location of the Existing Development which is readily visible to employees or, in the case of Development, continue to provide such facilities;
2. Provide or cause to be provided on-site availability of public transit tickets for one or more of the existing public transit providers;
3. Ensure the availability of meaningful incentives to the employees in the Development or Existing Development who make work trips by modes of transportation other than single occupant automobiles;
4. Provide a Transportation Demand Management Plan to the City describing in detail the TDM Program for the Development or Existing Development which has been implemented. This plan is for information purposes only and does not require approval of the City; and
5. Designate an individual to act as the TDM Program Coordinator or, in the case of Development, continue to designate such Coordinator. This person will be the contact person between the Development or Existing Development and the City and shall monitor all TDM Program activities for the site, disseminate information and act as a resource of information for employees.
6. Participate in, and implement, a TDM Program.
(b) By October 22, 2007, or within 5 years of the issuance of the Certificate of Occupancy, whichever is later:

1. Make commuter van service available to all employees in the Development or Existing Development at the expense of the employer or employee. If at the expense of the employee, the cost of such service to the employee shall be no more
than the actual cost of the service; and Section 23-246**.** Statement of Compliance with TDM Program Participation
Required**.**
(1) Sworn Statement Required. The Property Owner of any Development or Existing Development within the scope of this Division pursuant to Section 23-243, shall, in the case of Existing Development, on or before October 22, 2004 or, in the case of Development, within 2 years of the issuance of the Certificate of Occupancy, submit a sworn Statement of Compliance to the Executive Director of the Boca Raton Community Redevelopment Agency.
(2) Contents of Statement. The sworn, notarized Statement of Compliance shall describe in detail the TDM Program which has been implemented for the Development or Existing Development, including the name, address and
telephone number of any third party providers involved in the provision of TDM Program services. In addition, the Statement of Compliance shall contain text as follows:
COMES NOW [name of Property Owner, and authorized officer and title of officer of same, if officer is executing on behalf of the Property Owner], being duly sworn, states that [name and address of Development or Existing Development] is in full and complete compliance with each and every requirement of Division 8, Sections 23-243 through 23-247, Article IV, Chapter 23, Code of Ordinances.

Section 23-247**.** Annual Report**.**
The Property Owner of each Development or Existing Development within the scope of this Division pursuant to Section 23-243, shall file an annual report describing in detail the TDM Program implemented for the Development or Existing Development during the preceding calendar year. In the event that the implementation of the TDM Program involves employees employed by persons other than the owner of the Development or Existing Development, the annual report shall also include information compiled by the Property Owner regarding each such employer identifying the participation of such employees in the TDM Program. The annual report shall be due on January 15, 2006, or the 15th day of January of each year after the third anniversary of issuance of the Certificate of Occupancy for the Development, whichever is later, and shall include a detailed description of the TDM Program implemented during the preceding calendar year and an explanation of how the TDM Program will achieve a twenty five percent (25%) reduction in peak hour trip generation.

Section 23-248**.** City Training Program and Coordination Program.
(1) The City will provide comprehensive TDM Program training for employers, which training shall commence on or before October 22, 2004.
(2) Commencing no later than October 22, 2004, the City will conduct quarterly meetings with designated TDM Program Coordinators to facilitate coordination between TDM initiatives.

Section 23-249. Enforcement.
Any violation of any provision of this division may be enforced in a proceeding before a special master pursuant to Division 3, Article III, Chapter 2.

Section 23-250**.** Relation With Other Provisions Of Law**.**
The requirements and provisions of this Division shall apply in addition to the requirements and provisions of the Downtown Development of Regional Impact Development Order, Ordinance No. 4035, the City Charter, the Code of Ordinances, and general law, and compliance with the

requirements and provisions of this Division and the requirements and provisions of the Downtown Development of Regional Impact Development Order, Ordinance No. 4035, the City Charter, the Code of Ordinances, and general law shall be required.

Section 2. If any section, subsection, clause or provision of this ordinance is held invalid, the remainder shall not be affected by such invalidity.

Section 3. All ordinances and resolutions or parts of ordinances and resolutions and all sections and parts of sections in conflict herewith shall be and hereby are repealed.

Section 4. Codification of this ordinance in the City Code of Ordinances is hereby authorized and directed.

Section 5. This ordinance shall take effect immediately upon adoption.

4. San Bernardino County Travel Demand Management Ordinance (part of the Congestion Management Program)

The Congestion Management Program emphasizes maintenance of mobility for people and goods through many strategies, while helping to improve air quality. Strategies which can help to maintain mobility in ways that are consistent with achieving our air quality goals include those which focus on reductions in trip making, trip length, and travel demand, as well as those which increase the availability of modal alternatives to the single occupant vehicle. This chapter provides a framework for trip reduction and travel demand management for the CMP.

5.A LEGAL REQUIREMENTS

California Government Code Section 65089 (b) (3) states the requirements for the travel demand management element:
"(A) The program shall contain . . . a travel demand element that promotes alternative transportation methods, including, but not limited to, carpools, vanpools, transit, bicycles, and park-and-ride lots; improvements in the balance between jobs and housing; and other strategies, including, but not limited to, flexible work hours, telecommuting, and parking management programs. The agency shall consider parking cash-out programs during the development and update of the travel demand element.

5.B BENEFITS OF THE PROGRAM

Travel Demand Management can provide the following benefits:
• Increases mobility of people and goods at a minimal capital cost by improving system efficiency and maximizing system utility.
• Increases and integrates modal options by ensuring that actions are supportive of alternative modes.
• Encourages use of alternatives to the single occupant vehicle to reduce vehicle trips and vehicle miles traveled.
• Improves overall system performance by maintaining mobility for people and goods while reducing vehicle demand.
• Integrates air quality planning requirements with transportation planning and programming functions.

5.C IMPLICATIONS OF THE PROGRAM

The Travel Demand Management Element has linkages to other regional and local transportation and air quality plans and programs, transit plans, general plans, and related land use plans. This section describes some of those interrelationships
and implications of the program. Table 5-1 presents a list of trip reduction and travel demand management measures compiled by
Inland Empire Commuter Services. The list indicates whether the strategies satisfy the objectives of mobility, air quality, or both.

5.C.1 LINKAGES WITH THE SCAQMD AND MDAQMD

The air districts have a prescribed role in the development and implementation of the CMP. CMP legislation requires that the CMP be developed "in consultation with, and with the cooperation of," the local air quality management district**s**. The districts are also required to "establish and periodically revise a list of approved improvements, programs, and actions" that local jurisdictions

can incorporate into deficiency plans to "measurably improve multimodal performance..., and contribute to significant improvements in air quality." Finally, the law requires that the CMA consult with the air quality management districts before it calculates the impacts of traffic subject to exclusion pursuant to Government Code Section 65089.4(b)and (f). The integration of transportation control measures from the plans of the air quality management districts, which are in turn consistent with the regional mobility strategy defined in the Regional Transportation Plan, is important for a variety of reasons. It results in the selection of strategies to maintain mobility that are also consistent with the district strategies to attain air quality standards in accordance with deadlines established by the Federal Clean Air Act. It also recognizes that most transportation control measures (TCM's) are needed to meet mobility goals as well as to improve regional air quality. Finally, it allow**s** local governments to implement both mobility and air quality programs (Regional Transportation and Comprehensive Transportation Plans, CMP, and air plans) through one set of actions. All elements of the CMP must be consistent with the applicable air district plan. In addition, Government Code Section 65089 (b)(3) provides that a city or county in which a development will implement a parking cash-out program which is included in a congestion management program or deficiency plan shall grant to that development an appropriate reduction in the parking requirements otherwise in effect for the new commercial development. In the case of existing commercial development that has implemented a cash-out program included in a CMP or deficiency plan, the city or county shall grant an appropriate reduction in the otherwise applicable parking requirements based on the demonstrated reduced need for parking, and the space no longer needed for parking purposes may be used for other appropriate purposes. Transportation control measures to reduce congestion and improve air quality are identified and described within the respective air district plans, and are incorporated into this document by reference. For several of these measures, the air districts may adopt rules with future effective compliance dates. The nature of Deficiency Plan actions for which credit can be gained for systemwide level of service and air quality improvements has been an issue for some time. Credit may, subject to air district approval, accrue to localities or subregions through the ability to implement local or subregional programs in lieu of district implementation of Indirect Source Rules (ISR'S). Eligibility for such substitution is contingent on the local or subregional program being enforceable, and forecasting levels of emission reduction equal to or greater than that which would be achieved through implementation of the ISR's within that area, based on calculation methods subject to air district approval. The areawide Deficiency Plans contemplated in accordance with SANBAG policy and the 1997 CMP update could provide the enforceable mechanisms for such substitution programs. The MDAQMD has also developed a draft list of deficiency plan elements for the Desert jurisdictions.

5.C.2 RELATIONSHIP TO LOCAL JURISDICTION GENERAL PLANS AND ORDINANCES

Local jurisdiction general plan circulation elements often include policies and actions to encourage alternative transportation mode choices. The land use element of the general plans may contain policies promoting a balance between jobs and housing. Zoning ordinances may enforce these policies. Local jurisdictions are now required to grant appropriate levels of reduced parking requirements if cash-out programs are implemented by new or existing commercial development pursuant to Government Code Section 65089(d)(1) and (2). Transportation control measures undertaken in accordance with the provisions of the MDAQMD's Plan are likely to be implemented by the Air District.

5.C.3 RELATIONSHIP TO THE REGIONAL TRANSPORTATION PLAN

SCAG's Regional Transportation Plan (RTP) identifies transportation demand management as a principal component of the regional mobility strategy. In addition to developing and updating the plan, SCAG is responsible for finding it to be in conformance with Federal Clean Air Act

requirements. Given that the CMP is to be consistent with the RTP, CMP TDM measures must be consistent with the measures in the RTP.

5.C.4 RELATIONSHIP TO INLAND EMPIRE COMMUTER SERVICES (IECS)

IECS delivers rideshare matching services and information on commute alternatives. It can assist in providing marketing information and alternative commute mode statistics and in implementing adopted travel demand management measures. Actual ridematching documents are produced by SCAG.

5.C.5 RELATIONSHIP TO TRANSIT PROVIDERS

Transit providers have short range transit plans, marketing incentive programs, and passenger survey information which can assist in developing and implementing transportation demand management strategies. Through the Comprehensive Transportation planning process, the CMA consults with transit providers to maintain consistency between proposed transportation demand management measures and the transit services provided in the various areas of the county.

5.D OBJECTIVES, POLICIES, AND ACTIONS

Objective 5.1 Trip Reduction - Reduce the number of vehicle trips while maintaining personal mobility.

Policy 5.1.1 - Provide incentives and help to remove obstacles for transit**,** ridesharing, and reduced persontrips.

RESPONSIBILITY: The CMA in cooperation with local jurisdictions, Caltrans, and transit agencies.

Action Provide reduced-toll incentives for carpools and vanpools if toll facilities are developed in San Bernardino County.

RESPONSIBILITY: Caltrans.

Action Maintain performance measures in the CMP that are sensitive to the effectiveness of trip reduction and travel demand management strategies.

RESPONSIBILITY: The CMA in cooperation with local jurisdictions, transit providers, and Caltrans.

Action Ensure operation of HOV facilities at a higher LOS than mixed flow lanes within San Bernardino County as an incentive for multi-occupant vehicle travel.

RESPONSIBILITY: The CMA and Caltrans.

Action Grant new commercial development which will implement a parking cash-out program appropriate reductions in parking requirements otherwise in effect, and grant existing commercial development which has implemented a parking cash-out program an appropriate reduction in parking requirements otherwise applicable based on the demonstrated reduced need for parking.

RESPONSIBILITY: Local governments and the CMA.

Action Maintain an effective regional system of carpool and vanpool matching.

RESPONSIBILITY: Southern California Associated Governments Rideshare Department (SCAG).

Policy 5.1.2 - Facilitate and provide incentives or non-auto travel.

Action Study and recommend methods for encouraging transit, pedestrian and bicycle oriented development. Conduct this activity in conjunction with implementation of the Countywide Bicycle Plan and local livable communities initiatives.

RESPONSIBILITY: The CMA and SCAG to coordinate, local jurisdictions to participate as desired.

Objective 5.2 Reduce the length of trips while maintaining personal mobility.

Policy 5.2.1 - Provide incentives for reducing vehicle trip lengths.

Action Encourage job creation in San Bernardino County through development and implementation of transportation investment strategies which increase the county's ability to attract basic industry.

RESPONSIBILITY: The CMA, local jurisdictions, SCAG, and Caltrans.

Action Study and recommend methods for encouraging transit, TDM, pedestrian, and bicycle-oriented development.

RESPONSIBILITY: The CMA and SCAG to coordinate, local jurisdictions to participate as desired.

Objective 5.3 Improve air quality.

Policy 5.3.1 - Implement, document, and monitor local transportation control measures in a manner consistent with the appropriate
air quality plan(s).

Action Continue to implement transportation control measures in accordance with the CMP requirements.

RESPONSIBILITY: Local jurisdictions.

TDM MODEL ORDINANCE OPTIONS
To comply with CMP requirements, cities must adopt a TDM ordinance. If a city wishes to adopt an ordinance to actively manage congestion within its boundaries, Inland Empire Commuter Services has developed a matrix illustrating different techniques available and whether they impact air quality, congestion management, or both.

Table 5-1

TDM ORDINANCE PROVISION OPTIONS	STRATEGIES EMPHASIZING AIR QUALITY	STRATEGIES WHICH HELP CONGESTION MANAGEMENT
Regulate Medium and Large Employers	♦	♦
Regulate Multi-Tenant Building Owners	♦	♦
Regulate Developers	♦	♦
Require Mixed Use	♦	♦
Require Amenities that Reduce Need for Trips	♦	♦
Design Guidelines for Transit, Vanpools, Walking, and Bicycling	♦	♦
Increase Residential Densities at Transit Stations		♦
Fee Credits for Building Designs which Promote TDM Measures	♦	♦
Fee Credits for Building Remote Park & Ride Facilities		♦
Parking		
Preferential Parking for Ridesharers	♦	♦
Subsidized Parking for Ridesharers	♦	♦
Remote Park & Ride Lots with Amenities		♦
Support Zoning Code Variances for Commercial Uses Within Park & Ride Facilities		♦
Provide Bicycle Parking	♦	♦
Lower Development Sq./Ft. Ratios and Maximum Limits		♦
Transportation Allowance Instead of Subsidized Parking	♦	♦

TDM ORDINANCE PROVISION OPTIONS	STRATEGIES EMPHASIZING AIR QUALITY	STRATEGIES WHICH HELP CONGESTION MANAGEMENT
Ridesharing		
Rideshare Transportation Allowances	♦	♦
Ridesharing Subsidy, Tax Credits or Fees for Solo Commuters	♦	♦
Ridesharer Parking Cost Subsidy	♦	♦
Ridematching	♦	♦
Guaranteed Ride Home	♦	♦
Flex-Time		♦
Compressed Work-week	♦	♦
Telecommuting from Home	♦	♦
Telecommuting from Satellite Work Center		♦
Transit subsidies	♦	♦
Commuter Stores or Marketing Programs	♦	♦
Expanded On-Site Amenities	♦	♦
Walking		
Showers and Lockers	♦	♦
Safe Walking Routes	♦	♦
Bicycling		
Showers and Lockers	♦	♦
Bicycling Information (Maps)	♦	♦

Policy 5.3.2 - Ensure that other congestion management measures adopted by local jurisdictions and Caltrans do not have negative effects on air quality.

Action Conduct an air quality conformity review for all CIP projects in the CMP.

RESPONSIBILITY: SCAG.

Action Maintain a list of air quality compatible measures for the CMP.

RESPONSIBILITY: SCAQMD and MDAQMD.

5.E SUMMARY OF RESPONSIBILITIES

CMA Responsibilities

• Assist the SCAQMD and MDAQMD in development and maintenance of a menu of mitigation measures compatible with air quality requirements for consideration in deficiency plans, TIA Reports, and related studies.
• Encourage job creation in San Bernardino County through development and implementation of transportation investment strategies which increase the county's ability to attract basic industry.
• If desired by local jurisdictions, participate and assist in development of CMP Deficiency Plans which yield emission reductions that can be substituted for Indirect Source Rules.
• Assist SCAG in conducting air quality conformity determinations, with consultation of the Air Districts, for all CIP projects in the CMP.

• Prioritize capital projects that include High Occupancy Vehicle (HOV) lanes, facilitate non-motorized travel, and provide other time or price-related incentives for transit and ridesharing, or other vehicle trip reduction.
• Study and recommend methods for encouraging transit, TDM, pedestrian, and bicycle-oriented development.

Local Jurisdiction Responsibilities
• Include in deficiency plans, TIA Reports, and related studies only those mitigation measures deemed by SCAQMD and MDAQMD to be compatible with air quality requirements.
• Continue implementation of transportation control measures in accordance with CMP.
• Encourage job creation in San Bernardino County through strategies which increase the county's ability to attract basic industry.
• Study and consider methods for encouraging transit, TDM, pedestrian, and bicycle-oriented development.
• Grant new commercial development which will implement a parking cash-out program appropriate reductions in parking requirements otherwise in effect, and grant existing commercial development which has implemented a parking cashout program an appropriate reduction in parking requirements otherwise applicable based on the demonstrated reduced need for parking.

Air District Responsibilities
• Develop and maintain a list of air quality compatible mitigation measures for consideration in deficiency plans, TIA Reports, the CMP CIP, and related documents.
• Review ordinances, plans, and programs of local jurisdictions to ensure consistency with State law.

Caltrans Responsibilities
• For any toll facilities in San Bernardino County, provide reduced-toll incentives for carpools and vanpools.

Transit Agency Responsibilities
• Participate in formulation and application of multimodal performance measures in accordance with CMP requirements.

Inland Empire Commuter Services (IECS) Responsibilities
• Maintain TDM-related information and provide assistance to employers and local jurisdictions in implementing the provisions of TDM ordinances.
• In partnership with SCAG Rideshare Department, maintain an effective system of carpool and vanpool matching and formation.

5. City of Los Angeles Transportation Demand Management Ordinance

Section 98.0411 of the Municipal Code (Chapter IX)
J. Transportation Demand Management and Trip Reduction Measures. (Added by Ord. No. 167,700, Eff. 3/31/93.)

1. DEFINITIONS.
For the purpose of this section, certain words and terms are defined as follows:
Carpool. A vehicle carrying two to five persons to and from work on a regular schedule.
Development. The construction of new non-residential floor area.
Gross Floor Area. That area in square feet confined within the outside surface of the exterior walls of a building, as calculated by adding the total square footage of each of the floors in the building, except for that square footage devoted to vehicle parking and necessary interior driveways and ramps.
Preferential Parking. Parking spaces, designated or assigned through use of a sign or painted space markings for Carpools or Vanpools, that are provided in a location more convenient to the entrance for the place of employment than
parking spaces provided for single-occupant vehicles.
Transportation Demand Management (TDM). The alteration of travel behavior through programs of incentives, services, and policies, including encouraging the use of alternatives to single-occupant vehicles such as public transit, cycling, walking, carpooling/ vanpooling and changes in work schedule that move trips out of the peak period or eliminate them altogether (as in the case in telecommuting or compressed work weeks).
Trip Reduction. Reduction in the number of work-related trips made by single occupant vehicles.
Vanpool. A vehicle carrying six or more persons to and from work on a regular schedule, and on a prepaid basis.
Vehicle. Any motorized form of transportation, including but not limited to automobiles, vans, buses and motorcycles.

2. APPLICABILITY.
This subdivision applies only to the construction of new nonresidential gross floor area. Prior to the issuance of a building permit, the owner/applicant shall agree, by way of a covenant that runs with the land, to provide and maintain in a state of good repair the following applicable transportation demand management and trip reduction measures.

3. REQUIREMENTS:
(a) Development in excess of 25,000 square feet of gross floor area. The owner shall provide a bulletin board, display case, or kiosk (displaying transportation information) where the greatest number of employees are likely to see it. The transportation information displayed should include, but is not limited to, the following:
(1) Current routes and schedules for public transit serving the site;
(2) Telephone numbers for referrals on transportation information including numbers for the regional ridesharing agency and local transit operations;
(3) Ridesharing promotion material supplied by commuter-oriented organizations;
(4) Regional/local bicycle route and facility information;
(5) A listing of on-site services or facilities which are available for carpoolers, vanpoolers, bicyclists, and transit riders.

(b) Development in excess of 50,000 square feet of gross floor area. The owner shall comply with Paragraph (a) above and in addition shall provide:
(1) A designated parking area for employee carpools and vanpools as close as practical to the main pedestrian entrance(s) of the building(s). This area shall include at least ten percent of the parking spaces required for the site. The
spaces shall be signed and striped sufficient to meet the employee demand for such spaces. The carpool/vanpool parking area shall be identified on the driveway and circulation plan upon application for a building permit;
(2) One permanent, clearly identified (signed and striped) carpool/vanpool parking space for the first 50,000 to 100,000 square feet of gross floor area and one additional permanent, clearly identified (signed and striped) carpool/vanpool
parking space for any development over 100,000 square feet of gross floor area;
(3) Parking spaces clearly identified (signed and striped) shall be provided in the designated carpool/vanpool parking area at any time during the building's occupancy sufficient to meet employee demand for such spaces. Absent such demand, parking spaces within the designated carpool/vanpool parking area may be used by other vehicles;
(4) No signed and striped parking spaces for carpool/vanpool parking shall displace any handicapped parking;
(5) A statement that preferential carpool/vanpool spaces are available on-site and a description of the method for obtaining permission to use such spaces shall be included on the required transportation information board;
(6) A minimum vertical clearance of 7 feet 2 inches shall be provided for all parking spaces and accessways used by vanpool vehicles when located within a parking structure;
(7) Bicycle parking shall be provided in conformance with Section 12.21A16 of this Code.
(c) Development in excess of 100,000 square feet of gross floor area. The owner shall comply with Paragraphs (a) and (b) above and shall provide:
(1) A safe and convenient area in which carpool/vanpool vehicles may load and unload passengers other than in their assigned parking area;
(2) Sidewalks or other designated pathways following direct and safe routes from the external pedestrian circulation system to each building in the development;
(3) If determined necessary by the City to mitigate the project impact, bus stop improvements shall be provided. The City will consult with the local bus service providers in determining appropriate improvements. When locating bus stops and/or planning building entrances, entrances shall be designed to provide safe and efficient access to nearby transit stations/stops;
(4) Safe and convenient access from the external circulation system to bicycle parking facilities on-site.

4. EXCEPTIONS.
The provisions of this subsection shall not apply to developments for which an application has been deemed complete by the City pursuant to Government Code Section 65943, or for which a Notice of Preparation for a Draft Environmental Impact Report has been circulated or for which plans sufficient for a complete plan check were accepted by the Department of Building and Safety, on or before the effective date of this ordinance.

5. MONITORING.
The Department of Transportation shall be responsible for monitoring the owner/applicant's continual implementation and maintenance of the project trip reduction features required by this ordinance.

6. ENFORCEMENT.
Applicants shall execute and record a Covenant and Agreement that the trip reduction features required by this ordinance will be maintained, that required material specified in Subdivision 3 (a) (1)-(5) will be continually posted, and that additional carpool/vanpool spaces within the designated preferential area will be signed and striped for the use of ridesharing employees based on demand for such spaces. The Covenant and Agreement shall be acceptable to the Department of Transportation.

7. HARDSHIP EXEMPTION.
In cases of extreme hardship, duly established to its satisfaction, the City Council, acting in its legislative capacity, and by resolution, may grant an exemption from any/or all the provisions of this ordinance. In granting such an exemption, the City Council shall make the following findings:
(a) Specific features of the development make it infeasible to satisfy all of the provisions of this subsection; and
(b) The applicant has committed to provide equivalent alternative measures to reduce vehicle trips.

APPENDIX F

ACTION PLAN FOR THE PENINSULA TRANSIT STUDY

Appendix F. Action Plan for the Peninsula Transit Study

Category	Strategy	Rec. No(s)	Responsibility	Capital Cost	Annual Cost	Timeframe	2009 (Q1 Q2 Q3 Q4)	2010 (Q1 Q2 Q3 Q4)	2011 (Q1 Q2 Q3 Q4)	2012 & on
Immediate Term Actions										
Parking and Transportation Demand Management										
	1) Institute a Trip Reduction Program	8.1	City of Portland	N/A	$100,000	Spring 2009				
	2) Establish a Transportation Management Association	7.9	City of Portland, GPCOG, Maine DOT, Maine Turnpike Authority, the Chamber of Commerce, METRO, South Portland Bus, CBITD, MMC, USM, others	N/A	$100,000 – $650,000	Fall 2009				
	3) Establish a "Sustainable Transportation Fund"	8.2	City of Portland	N/A	N/A	Spring 2009				
	4) Adopt a TDM Ordinance	7.15	City of Portland	N/A	N/A	Winter 2008-2009				
	5) Establish a Transportation Resource Center	7.1	City of Portland, local businesses, the Chamber of Commerce, METRO, CBITD, South Portland Bus, other transit providers.	N/A	$0-62,000	Summer 2009				
	6) Pursue a "Park Once" Strategy	7.1	City of Portland	$100,000	N/A	Spring 2009 – Spring 2010				
	7) Create Commercial Parking Benefit Districts	7.2	City of Portland	$25,000	Revenue: $3.5M	Summer 2009				
	8) Offer a "Parking Impact Fee" Program	7.6	City of Portland	N/A	Revenue: dependent on development	Spring/Summer 2009				
	9) Establish a Car-Sharing Program	7.7	City of Portland, advocacy groups, Portland Chamber of Commerce, MMC and USM.	N/A	$2-3,000 per shared car	Spring 2009				
	10) Implement a Peninsula Park & Ride Facility	8.3	City of Portland, Maine Turnpike Authority, Maine DOT, METRO, Concord Trailways, Amtrak, nearby businesses, and MMC.	$250,000	$75,000 Revenue: $225,000	2009-2010				
	11) Pursue Off-Peninsula Park & Ride Expansions	6.1	City of Portland, ShuttleBus/ZOOM, the Maine Turnpike Authority and participating municipalities.	N/A	N/A	Spring 2009				

Category / Strategy	Rec. No(s)	Responsibility	Capital Cost	Annual Cost	Timeframe	2009 (Q1 Q2 Q3 Q4)	2010 (Q1 Q2 Q3 Q4)	2011 (Q1 Q2 Q3 Q4)	2012 & on
Immediate Term Actions		(continued)							
Transit System Improvements									
12) Marketing	6.1-5 and 8.4	City of Portland, GPCOG, the Portland Chamber of Commerce, METRO, South Portland Bus, Casco Bay Ferries, Zoom Turnpike Express, Concord Trailways, Amtrak	$105,000	N/A	Spring-Fall 2009				
13) Improved Transit Amenities	6.6	City of Portland, Public Works Department	$20,000	N/A	Summer 2009				
14) Providing Community Transit Services	6.7	City of Portland, METRO and RTP	N/A	N/A	Winter 2009				
15) METRO and South Portland Bus Route Changes	6.11	City of Portland, METRO and South Portland Bus	N/A	N/A	2009				
16) Congress Street Bus Priority Corridor	6.12	City of Portland, METRO and South Portland Bus	$38,000	N/A	Summer 2009				
Walking and Biking Strategies									
17) New Pedestrian Programs	5.1-5 and 8.6	City of Portland, Public Works and Planning Departments	N/A	$40,000	Winter 2009				
18) Congress & High Improvements	5.6	City of Portland	$50,000	N/A	Summer 2009				
19) Forest & I-295 Evaluation	5.7	City of Portland and Maine DOT	N/A	N/A	Winter 2009				
20) Pedestrian Crossing Improvements	5.8-9	City of Portland	$10,000	N/A	Spring-Summer 2009				
21) Bike Rack Design Guidelines	5.14	City of Portland	N/A	N/A	Winter 2009				
22) Priority Biking Improvements	5.15-16	City of Portland	$10,000		Spring 2009				

Category	Strategy	Rec. No(s)	Responsibility	Capital Cost	Annual Cost	Timeframe	2009	2010	2011	2012 & on
							Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	
Short Term Actions										
Parking and Transportation Demand Management										
	23) Expand Park & Ride at the PTC	8.5	City of Portland, transit providers, and private partners	($9M financed)	$600,000	2011 or later				
Transit Strategies										
	24) METRO Route Changes	6.11	METRO	N/A	N/A	2011				
	25) Cross-Peninsula Transit Priority Corridor	6.12	City of Portland, METRO and South Portland Bus	$165,000	?	2011				
	26) Real-Time Arrival Information	6.13	METRO and City (optionally South Portland Bus Service)	$400,000	$100,000	2011				
	27) Expand Universal Transit Pass Offerings	7.3	METRO, South Portland Bus, ShuttleBus/ZOOM, and CBITD	N/A	N/A	2010				
Walking and Biking Strategies										
	28) Safety and Access Improvements	5.10-11	City of Portland (or new development where applicable)	$500 - $15,000 per location	N/A	2011-2013				
	29) Bicycle Rack Program	8.5	City of Portland	N/A	N/A	2009				
	30) Bike Stations	5.19	City of Portland	N/A	$150,000	2011?				

Category	Strategy	Rec. No(s)	Responsibility	Capital Cost	Annual Cost	Timeframe	2009				2010				2011				2012 & on
							Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
Additional Actions																			
Parking and Transportation Demand Management																			
	Traffic congestion impact fee																		
	Require Universal Transit Passes																		
	Build new public shared parking only as needed																		
Transit System																			
	Signal priority on priority corridors																		
	Real-time next bus information in bus shelters																		
	New hybrid equipment																		
	Increase frequencies to at least every 10 minutes.																		
	Install electronic fare collection equipment																		
	Begin a harbor water shuttle																		
	BRT service along Forest Avenue Corridor.																		
	BRT service along Route 6 & 7 corridor to the northwest.																		
	Fixed-guideway trolley service along Commercial Street waterfront																		
	Fixed-guideway light-rail service																		
Walking and Biking Networks																			
	Continue multi-use path around to Bayside																		
	Traffic calm Park Avenue																		
	Convert State and High to two-way streets																		
	Reconfigure Franklin Arterial as a multi-way boulevard																		
	Add multi-use connections across I-295																		