

# DRAFT TASK 4 MEMORANDUM



## TASK 4: Data Collection and Existing Conditions Analysis Franklin Street Feasibility Study - Phase II

Submitted to City of Portland  
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September 23, 2013



Cathedral of Immaculate Conception

One of the few pre-1966 structures remaining around Franklin Street

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# 1. Introduction

Franklin Street Feasibility Study Phase II, under an agreement between the City of Portland, MaineDOT, and Portland Area Comprehensive Transportation System (PACTS), is a project to “[update and evaluate] alternatives [developed in a Phase I study] through a more comprehensive technical and engineering analysis that includes land use, social, economic, neighborhood and street connectivity, environmental, safety, and transportation data of both current and future conditions for the entire Franklin Street corridor from the Commercial Street Waterfront to the Waterfront at Back Cove.” In addition, the project also includes the development of a Preliminary Design Report (PDR), based on the final recommendation, for a section of Franklin Street between the Marginal Way intersection and 825 feet southeast of the Fox/Somerset Street intersection.

More information on the Phase I study and its final report can be found at <http://www.portlandmaine.gov/franklinstreet.htm>. Many committee members from that phase of the work became part of the Public Advisory Committee working on Phase II.

Prior to carrying out this Existing Conditions analysis, a revised vision statement was developed for this phase of work based on input from the Public Advisory Committee. Goals, objectives, and measures of effectiveness were also developed based on the vision statement and available data.

Revised Vision Statement for Franklin Street Feasibility Study Phase II:

**Franklin Street will be a critical transportation facility for all modes of travel, linking Interstate 295 & Back Cove to the waterfront & island ferries and serving as an attractive gateway to the city. Franklin Street will be a vibrant, active and walkable urban corridor, connecting neighborhoods and destinations. It will enhance the urban fabric of the city through mixed-use development of appropriate, diverse, and functional residential, commercial and recreational space in the midst of attractive streetscapes.**

**All modes of travel, including motor vehicles, public transit, bicycle and pedestrian, shall be able to coexist in a design that is safe and environmentally sound for an urban setting through state-of-the-art design utilizing optimum architecture, street widths, curbs, sidewalks and street level crosswalks, and other appropriate amenities such as vegetation, trees and art.**

This document contains the results of the Existing Conditions analysis for the study area. The understanding of the issues and opportunities presented by the existing conditions analysis in this document will be the foundation for updating the three 2035 Build alternatives from the Phase I study. The

study area is shown in the base map, which is included as Exhibit 1.1. The study area is defined as about one-quarter mile in either direction around Franklin Street. While much of the analysis in this document is carried out primarily for Franklin Street, because existing data often focus on this corridor, the corridor should always be considered and study recommendations will be made in the context of the entire study area; both the corridors as well as the streets and neighborhoods around and connecting with it.

This Existing Conditions Analysis begins with a historical narrative, focusing particularly on the effect that the changes to Franklin Street have had on the entire study area. This narrative is followed by a summary of previous, relevant reports and plans. Then, the relevance of ongoing efforts in relation to this project are briefly discussed. Then, the report presents a wide range of data and accompanying analysis in a variety of topic areas, including the following:

- Demographics Analysis
- Land Use and Zoning Analysis
- Streetscape Analysis
- Physical and Biological Environment Analysis
- Traffic and Transportation Analysis

The Traffic and Transportation Analysis is again subdivided into different aspects of the transportation system and different modes:

- Inventory of Roadway Characteristics
- Traffic Volumes and ATR Counts
- Crashes
- Operational Analysis and Level of Service (including vehicular LOS as well as multimodal LOS)
- Pedestrian and Bicycle Analysis
- Transit Service Analysis
- Parking Assessment

Finally, this document concludes with common themes or threads that have been identified in the various topic areas, that will help guide the development of alternatives. These alternatives will build on those defined in the Reclaiming Franklin Street report, the outcome of the Phase 1 Franklin Street study. However, based on the extensive information provided in this Existing Conditions analysis and input from the Public Advisory Committee for Phase II, it is possible there could be new or significantly modified alternatives.

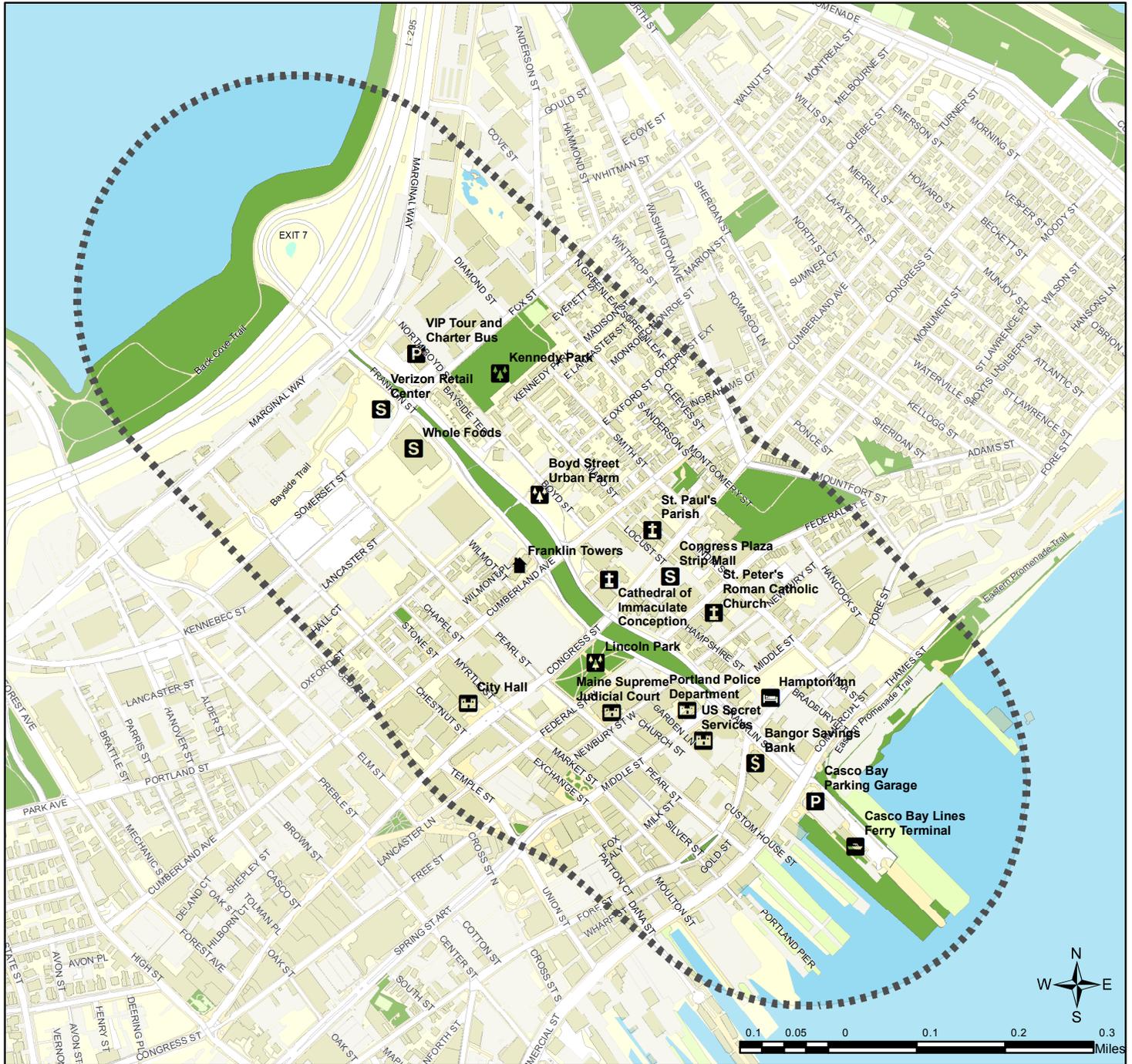


Exhibit 1.1 Study Area for Franklin Street Feasibility Study Phase II



## 2. History - Then and Now

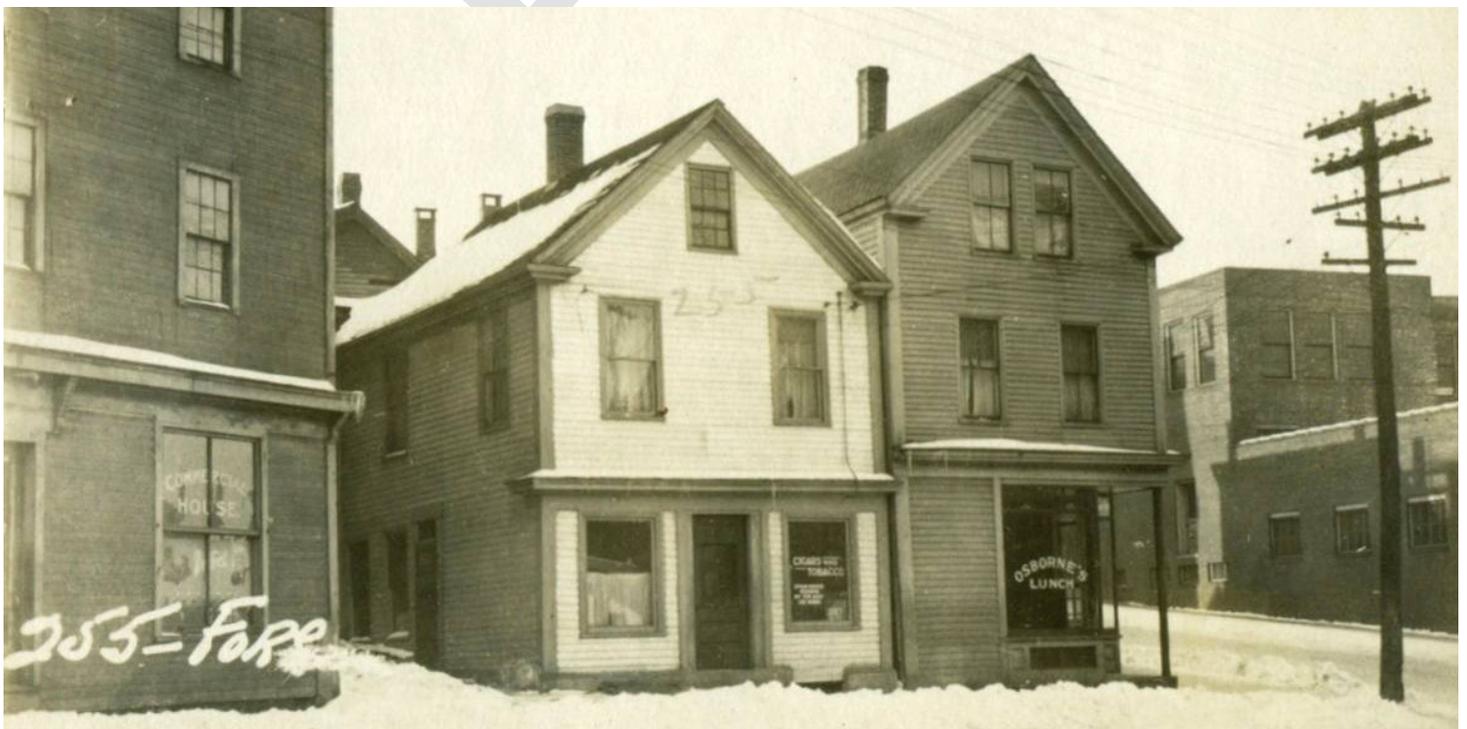
Franklin Street is a vital transportation link running northwest to southeast across the Portland Peninsula, classified as a “minor arterial” under the National Highway System. Currently, the street’s primary purpose is as a vehicular thoroughfare, designed to efficiently funnel high volumes of traffic from Interstate 295 through to Portland’s downtown and waterfront. Franklin Street, however, used to look quite different than it does today. The following historical narrative provides a deeper understanding of existing conditions than data alone can provide. This history is presented before the analysis to ensure that the corridor is not viewed out of context or as though it exists in a single point in time. The following sections provide a summary of the history of Franklin Street and how it arrived at its present form and function.

### EARLY FRANKLIN STREET:

Franklin Street began in the 18th century as Essex Street, running from Back Street (which later became Congress Street) through to Tyng’s Wharf at the Fore Street waterfront. By 1823 a new street, named Franklin Street and more or less aligned

with the original Essex Street, extended from Congress Street to Back Cove. At that time, Back Cove had not yet been filled and its shores extended approximately to where Oxford Street is today). In the 1850s, Franklin Street was connected to the newly-constructed Commercial Street and extended out into the harbor on the Franklin Wharf.

A two-lane residential/mixed use street, Franklin Street was historically well-integrated into Portland’s neighborhood fabric. The street was lined with small businesses and single family homes. There were cross streets at regular intervals, including Oxford and Lancaster Streets, which, at the time,



Source of all photos on this page- City of Portland 1924 tax photo collection

served as important east-west connections through the City. In fact, Oxford Street was the primary east-west route through Portland before the construction of Route 1 around Back Cove and later, Interstate 295.

**ECONOMIC GROWTH AND DECLINE:**

Along with much of the City, most all of the buildings along Franklin Street were destroyed in Portland's Great Fire of 1866. During rebuilding, Portland established its first public park, Lincoln Park, which helped Franklin Street become a

desirable residential neighborhood. Portland's collection of 1924 tax photos show well-maintained residences and small-scale commercial businesses along an attractive, elm tree lined street.

In the 18th and 19th centuries, Portland thrived as a seaport town. Following the Great Depression and World War II, however, the City spiraled into economic decline. Single family homes along Franklin Street began to be converted into tenement apartments. This corresponded with the settlement in the Franklin Street neighborhoods of various immigrant



Exhibit 2.1 Historical Map Overlaid on Franklin Street Basemap (adapted from 1966 Takings Map)



communities including but not limited to Italian, Jewish, Lithuanian, and Armenian. By the 1950s, "Maintenance Free" siding materials had obscured much of the architectural detail and character of many buildings, and further subdivision into smaller and smaller residential units had increased the population density of the neighborhoods.

In the 1940's and 50's, traffic congestion and the problem of slums consistently made headlines. Portland City officials were focused on developing strategies on what to do about slums and how to increase the flow of traffic into the city more effectively from the suburbs. Exhibit 2.1 provides a sense for the property lines and curb cuts from in 1966, before those strategies were implemented, making Franklin Street what it is today.

### PORTLAND SLUM CLEARANCE

Between 1954 and 1956, Portland's Slum Clearance and Redevelopment Administration began the city's first slum clearance project, demolishing the "Little Italy" neighborhood, which bordered Franklin. The buildings of Vine, Deer, and Chatham Streets, home to 64 families, 28 individuals, and 27 small businesses, were deemed "substandard". Every building in the neighborhood, with the exception of the Hub

Furniture Building (which still stands today on Fore Street) were razed. That year also saw the demolition of the mixed-use area between Lancaster, Pearl, Somerset, and Franklin Streets in another phase of "slum clearance", making way for the "Bayside West" project. This clearance area included 44 housing units, at least 31 households, and was home to more than 85 residents. Across Franklin Street another 54 units were razed for the "Bayside Park" urban renewal project. This area, now called "Kennedy Park," had through streets that were truncated in an attempt to limit access to outside traffic, a strategy that at the time was thought to reduce crime. The razing of Franklin Street itself began in 1967 to accommodate the Victor Gruen Associates plan (discussed below); 100 additional structures were demolished and an unknown number of families were relocated. Only three buildings on Franklin Street survived slum clearance and still stand today- (1) A portion of the former W.L. Blake Complex between Fore and Commercial, (2) the present day Hugo's Restaurant building at the corner of Franklin and Middle Streets, and (3) a brick apartment house further to the north near the cathedral. Lincoln Park remained in its original location, however, approximately one-quarter of the park was lost in order to accommodate the new arterial.

## Aerial View of Franklin Corridor Before and After Arterial Project



Source - Portland Press Herald 2009

**PORTLAND AND THE EFFORT TO ACCOMMODATE CARS- PATTERNS FOR PROGRESS**

As a historic New England port city that was built around railroads and a deep water harbor, Portland was not designed to accommodate an influx of cars. Nonetheless, due to construction of highways and the trend of suburbanization in post-World War II America, the demand for auto infrastructure was pressing. Portland officials saw the rise of the automobile, and the corresponding construction of the interstate, as a tool for downtown economic revitalization. They needed to devise a way to get cars into and through the City. In 1965 they hired Victor Gruen Associates to assist them in planning a Portland that would be more accommodating to receiving and moving traffic. The resulting plan, entitled Patterns for Progress, was completed in 1967. The redesign of Franklin Street was but one aspect of Patterns for Progress, which was envisioned as a general

**Sources:**

- Bell, Tom. 'Rethinking an Urban Vision', Portland Press Herald, April 26, 2009
- Franklin Street Phase 1 Study final Report
- Hanson, Scott. "History of Franklin Street, Portland, Maine." Powerpoint Presentation. Presented at first Meeting of Franklin Street Redesign Committee, Portland, ME. 16 Nov 2010.
- Antonacci, Karen. 'Revitalization Effort focuses on Lincoln Park', Portland Press Herald, June 17, 2013
- (2009) Franklin Reclamation Authority Website. History of Franklin Arterial. Retrieved August, 2013 from [www.franklinstreet.us/the-franklin-reclamation-authority-fra/history-of-franklin-arterial](http://www.franklinstreet.us/the-franklin-reclamation-authority-fra/history-of-franklin-arterial)

neighborhood renewal plan for the entire Portland Peninsula. The plan sought to construct a ring road system around the City center. Other components of the ring road plan that were constructed (although only a portion of the plan was ultimately constructed) included converting High and State Streets one-way and the construction of Spring Street Arterial, which also resulted in demolition of several blocks of historic neighborhood to the west of the Old Port where the Civic Center stands today.

Although Gruen's plan considered several routes to move traffic from the interstate to downtown, Franklin Street was ultimately selected as the preferred primary route. The development of Franklin Street into Franklin Arterial served as a large-scale urban revitalization project that, after demolishing a sizeable swath of neighborhood and, in its place, would result in a four-lane divided highway running from Interstate 295 to Commercial Street. The clearance and construction of Franklin Arterial had profound effect on the circulation system of the City as a whole, cutting off numerous side streets and, as a result, isolating Munjoy Hill and East Bayside from the west and vice versa.

The vision for Franklin Street Feasibility Study Phase II suggests a reconnection or restitching of the urban fabric that was damaged by the development of Franklin Arterial. Therefore, in this study, we call it a "street" instead of an "arterial".



**Exhibit 2.2** Section through Franklin Street (1966) before the Urban Revitalization Project resulting in Franklin Arterial



**Exhibit 2.3** Section through present day Franklin Arterial



## HISTORIC LANDMARKS

There are pieces of history that still remain as a fabric of the study area. Exhibit 2.4 is a map of the historic landmarks, as well as the historic landscapes and cemeteries, taken from the City of Portland website. The study area contains the following 15 historic landmarks (moving more or less from northeast to southwest):

- North School
- St. Paul's Church and Rectory
- Cathedral of the Immaculate Conception
- Thompson Block
- Rackleff Building
- Woodman Building

- U.S. Customhouse
- U.S. Courthouse
- Central Fire Station
- Mariner's Church
- Portland City Hall
- Chestnut Street Methodist Church
- Masonic Temple
- Portland High School
- First Parish Church

The study area also contains the Eastern Cemetery and Lincoln Park, both historic spaces. Future work in this project will take into account these historical landmarks.



Figure 2.1. US Custom House



Figure 2.2. Thompson Block



Figure 2.3. Portland City Hall



Figure 2.4. Portland High School



Figure 2.5. Cathedral of Immaculate Conception



Figure 2.6. Rackleff Block



Figure 2.7. Central Fire Station



Figure 2.8. Courthouse

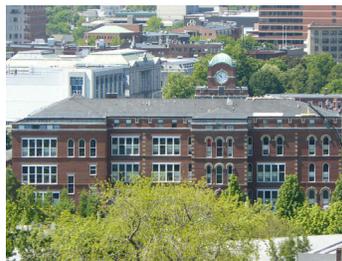
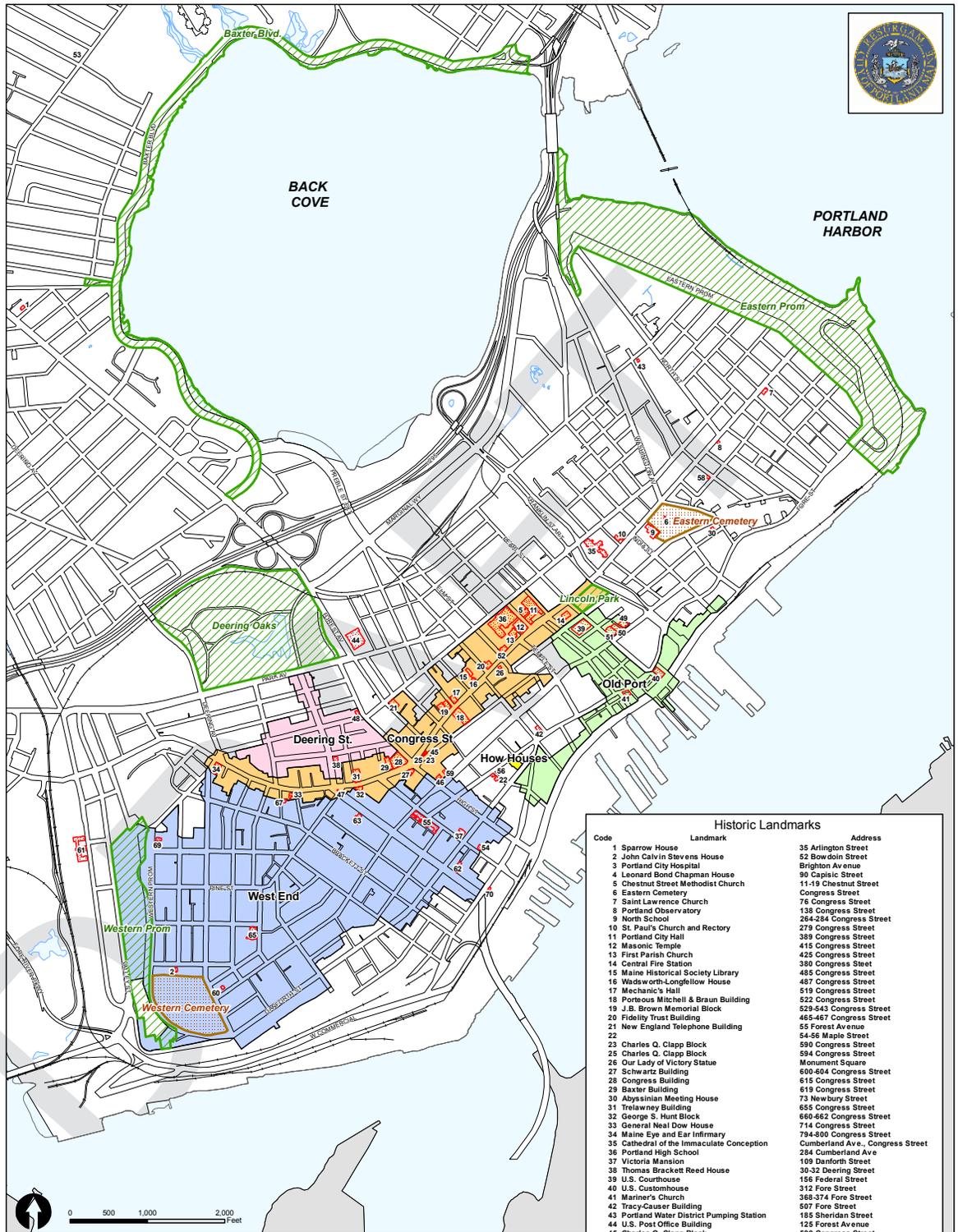


Figure 2.9. North School



Figure 2.10. Masonic Temple

Source: <http://portlandlandmarks.org/resources/preservation-service/preservation-services/the-portland-71-list/>



**Historic Districts with Historic Landscapes, Cemeteries & Individual Landmarks**

City of Portland Peninsula

Effective April 15, 2009

Historic Districts

- |               |             |                     |
|---------------|-------------|---------------------|
| Congress St   | Old Port    | Historic Landmarks  |
| Deering St.   | Stroudwater | Historic Landscapes |
| Fort McKinley | West End    | Historic Cemeteries |
| How Houses    | Westbrook   |                     |

Code	Landmark	Address
1	Sparrow House	35 Arlington Street
2	John Calvin Stevens House	52 Bowdoin Street
3	Portland City Hospital	Brighton Avenue
4	Leonard Bonc Chapman House	90 Capлиц Street
5	Chestnut Street Methodist Church	11-19 Chestnut Street
6	Eastern Cemetery	Congress Street
7	Saint Lawrence Church	76 Congress Street
8	Portland Observatory	138 Congress Street
9	North School	278 Congress Street
10	St. Paul's Church and Rectory	389 Congress Street
11	Portland City Hall	415 Congress Street
12	Masonic Temple	415 Congress Street
13	First Parish Church	425 Congress Street
14	Central Fire Station	380 Congress Street
15	Maine Historical Society Library	485 Congress Street
16	Wadsworth-Longfellow House	487 Congress Street
17	Mechanic's Hall	519 Congress Street
18	Porteous Mitchell & Braun Building	522 Congress Street
19	J. B. Brown Memorial Block	528-543 Congress Street
20	Fidelity Trust Building	465-467 Congress Street
21	New England Telephone Building	55 Forest Avenue
22		54-56 Maple Street
23	Charles Q. Clapp Block	890 Congress Street
25	Charles Q. Clapp Block	594 Congress Street
26	Our Lady of Victory Statue	Monument Square
27	Schwartz Building	600-604 Congress Street
28	Congress Building	615 Congress Street
29	Baxter Building	619 Congress Street
30	Abyssinian Meeting House	73 Newbury Street
31	Trelawney Building	655 Congress Street
32	George S. Hunt Block	660-662 Congress Street
33	General Neal Dow House	714 Congress Street
34	Maine Eye and Ear Infirmary	794-800 Congress Street
35	Cathedral of the Immaculate Conception	Cumberland Ave., Congress Street
36	Portland High School	284 Cumberland Ave
37	Victoria Mansion	109 Danforth Street
38	Thomas Brackett Reed House	30-32 Deering Street
39	U.S. Courthouse	156 Federal Street
40	U.S. Customhouse	312 Fore Street
41	Mariner's Church	368-374 Fore Street
42	Tracy-Causser Building	507 Fore Street
43	Portland Water District Pumping Station	185 Sheridan Street
44	U.S. Post Office Building	125 Forest Avenue
45	Charles Q. Clapp Block	588 Congress Street
46	McLellan-Sweet Mansion	111 High Street
47	Longfellow Monument	Longfellow Square
48	Griffin House	200 High Street
49	Thompson Block	117-123 Middle Street
50	Rackieff Building	127-133 Middle Street
51	Woodman Building	133-141 Middle Street
52	Clapp Memorial Block	Monument Square
53	John B. Russworm House	238 Ocean Avenue
54	William Minott House	45 Park Street
55	Park Street Row	80-114 Park Street
56	Nutter House	87 Spring Street
57	Fifth Maine Regiment Community Center	Seashore Avenue, Peaks Island
58	Green Memorial A.M.E. Zion Church	46 Sheridan Street
59	Charles Q. Clapp House	317 Spring Street
60	The Gothic House	387 Spring Street
61	Maine Central Railroad General Office Building	222-224 St. John Street
62	Joseph Holt Ingraham House	51 State Street
63	Portland Club	156 State Street
64	F.O.J. Smith Tomb	Stevens Ave., Evergreen Cemetery
65	Williamson-West Church & Parish House	32 Thomas Street
66	Marine Hospital	331 Veranda Street
67	A.B. Butler House	4 Walker Street
68	Tate House	1270 Westbrook Street
69	Adam P. Leighton House	261 Western Promenade
70	Nathaniel Dyer House	168 York Street
71	Fort Gorges	Fort Gorges
	Maine Archaeological Site No. 9	

City of Portland, Maine Department of Planning & Development and the Department of Public Services

Exhibit 2.4 Historic Districts and Landmarks

Source: <http://portlandlandmarks.org/>



### 3. Review of Existing Reports and Plans

Over the years, the City of Portland, PACTS, and other agencies have sponsored or developed numerous reports that have relevance to the current work on Franklin Street. Appendix A contains summaries of 22 reports and plans, each including a table of contents, a brief abstract, and some notes about the relevance of the report or plan for Franklin Street Feasibility Study Phase II. These plans include the following:

- Time of Change: Portland Transportation Plan, July 1993
- Celebrating Community: A Cultural Plan for Portland, Maine, 1998
- A New Vision for Bayside, April 2000
- Master Plan for the Redevelopment of the Eastern Waterfront, June 2002
- Housing: Sustaining Portland's Future, November 2002
- Portland Economic Development Vision + Plan, August 2011
- Portland Peninsula Traffic Study, 2004
- Eastern Promenade Master Plan, 2004
- Eastern Waterfront Building Height Study, September 2004
- Bus Rapid Transit & Light Rail Transit Study, December 2004
- Portland Comprehensive Plan Update, 2005
- Destination Tomorrow, PACTS Regional Transportation Plan, June 2006
- PACTS Regional Transit Coordination Study, May 2007
- City of Portland Wayfinding System Study, June 2008
- Portland Peninsula Vehicular Wayfinding Plan, July 2013
- Portland Peninsula Sidewalk and Ramp Inventory, January 2009
- East Bayside Neighborhood Study, 2009
- Portland Peninsula Transit Study, June 2009
- PACTS Regional Bicycle & Pedestrian Plan Update, July 2009
- Reclaiming Franklin Street, November 2009
- Sustainability Initiatives in East Bayside Neighborhood, June 2010
- Congress Street Bus Priority Study, January 2013
- Pedestrian and Bicycle Chapter of the City of Portland Comprehensive Plan, December 2012

# 4. Discussion of Ongoing Relevant Projects/Efforts

There are several on-going studies or projects that are relevant and timely for the work on Franklin Street. Throughout the work for Franklin Street Feasibility Study Phase II, it will be important to coordinate and communicate with the groups working on these efforts.

## INDIA STREET

India Street is a Pilot Center location in the Sustain Southern Maine Partnership, a regional long-term sustainability project funded by HUD, USDOT and EPA. The goal for the India Street neighborhood was to try to understand how much residential and commercial growth this neighborhood could absorb in the coming decades to make it a more vibrant urban area. Growth potential was evaluated based on specific criteria such as input from residents and customers on their vision for the area, availability of land for infill and redevelopment, and historic and environmental resource restrictions. More information about the project and materials produced as part of this project can be found at <http://sustainsouthernmaine.org/pilot-communities/portlandindiast/>.

A portion of the India Street neighborhood lies within the study area for Franklin Street Feasibility Study Phase II. New, denser development along Franklin Street, with the potential for expansion into the existing right of way, were part of the preliminary recommendations; feedback on access to the neighborhood via Federal Street was also part of the discussion. These recommendations will be taken into consideration as Franklin Street Feasibility Study Phase II progresses. The Franklin Street Phase II study will have a more in-depth transportation analysis than that which was done as part of this project.

## LINCOLN PARK

Friends of Lincoln Park (<http://lovelincolnpark.org/>) is an organization promoting the revitalization and restoration of Lincoln Park. Lincoln Park is a key asset on the corridor and the interest in restoring the park to its original size was taken into account in the alternatives developed for the Phase I study. The park is approximately 2.5 acres and is listed on the National Register of Historic Places. It is important to recognize that restoration of the park to its original size would have implications for development and other factors along the corridor.

## DEVELOPMENTS AND INFRASTRUCTURE PROJECTS

There are numerous development sites in the study area that have either received or are in the process of pursuing funding. A list of known developments and their status are summarized in the following table and shown in Exhibit 4.1.



Figure 4.2. Sustain Southern Maine India Street Neighborhood Concept Plan



Figure 4.1. 1930 Sketch of Lincoln Park

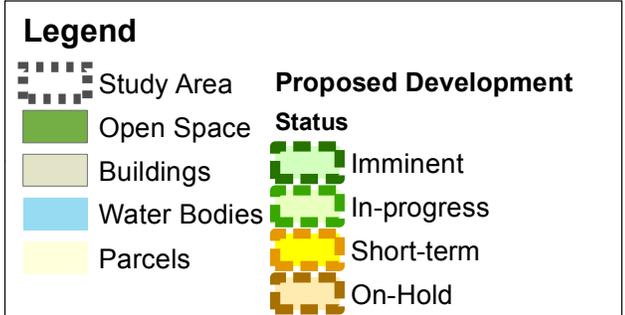


Exhibit 4.1 Upcoming Developments in the Study Area

Table 4.1 Upcoming Developments and Status

Development Name	Location	Status	Size (if known)	Description of Units	Further Description of Status
Bay House Phase 1	Middle, Hancock and Newbury Street	In progress		94 units	Under Construction
Bay House Phase 2	Newbury and Hancock	Short-term		39 residential units	Under review
Newbury Street Condos	Federal, Newbury, and Hampshire	Imminent		25 units	Approved
Bayside Anchor	Boyd and Oxford	Short-term		42 Units	Seeking city financing
Midtown Phase 1	Somerset and Chestnut	Short-term		200 units	Under review
Opechee Phase 2	Fore, India, and Middle	On-Hold		18 units, 200k retail, 60k office	Approved but stalled
Portland Company Complex	58 Fore Street	Unknown	10 acres	Unknown	Purchase closed, currently announced that it will keep operating the 128-slip marina
Federated Companies Property	Between Somerset and Marginal	Short-term	3.5 acres	Supposed to include housing, retail, office, medical office, parking structure. Includes removal of scrapyards across from Whole Foods	
Boutique Hotel	Old Portland Press Herald Building across from City Hall	On-Hold	5 stories?	110 rooms. Street-level restaurant	Pending financing

**Definition of “Status” categories:**

In progress	Under Construction
Imminent	Funding secured, has not started construction
Short-term	Application pending or expected in the next five years
On-Hold	Was expected in the next five years, but a complication makes it unpredictable
Unknown	Key opening for development, but unknown when it will be developed. No application pending.

Development opportunities will be discussed further in the land use section of this analysis, but it is important to acknowledge the on-going reality of developments that are taking place. There are also on-going infrastructure projects, such as the planned raise in elevation on Somerset Street between Pearl and Elm. Proposals have also been submitted for a 3.5 million gallon long term combined sewer storage conduit that will be located in the vicinity of Marginal Way. Projects such as these can provide opportunities for realizing more immediate and potentially intermediate improvements to the study area.



## 5. Analysis of Existing Conditions

### 5.1. Demographics Analysis

Population density in the study area, shown in Exhibit 5.1, ranges from 0 to up to 35,000 persons per square mile, with higher densities in the central part of the study area. Very few blocks at the two ends of the corridor in the north and south are populated. As seen in Exhibit 5.1 and Exhibit 5.2 most of the population lives between Somerset and Congress Streets, and on the eastern side of Franklin Street between Fox and Middle Streets. The housing density in these areas range from 1000 to 13,000 housing units per square mile. Portland's average population density is about 3,000 persons per square mile.

Exhibit 5.3 shows poverty levels at the block group level and household incomes. Most of the block groups around the study area have a high level of poverty with up to 70% of the population living below the poverty mark in some areas. This is much higher than the city-wide average of 14%. A large number of households living to the east of Franklin Street and between Somerset and Congress Streets to the west

of Franklin Street have incomes less than \$10,000. Second to these are the households earning between \$35,000 to \$40,000, in the same range as the city-wide median household income of \$36,000.

Exhibit 5.4 shows the proportion of people using different modes of travel to work. The largest number of people drive to work alone. However there is a large population in the study area that walks to work. The population to the northwest of the study area is not well served by public transportation and therefore does not show any use of this mode. The population between Congress and Commercial Streets to the east of the corridor uses public transportation extensively by comparison. In fact only 30% population in this block group drive alone to work. Almost 50% of the population either use public transportation or walk to work. This block group also shows considerable use of bikes to travel to work - almost 5%. These numbers show that there is a huge demand for good walking conditions around Franklin Street with a large percentage of captive transit riders.

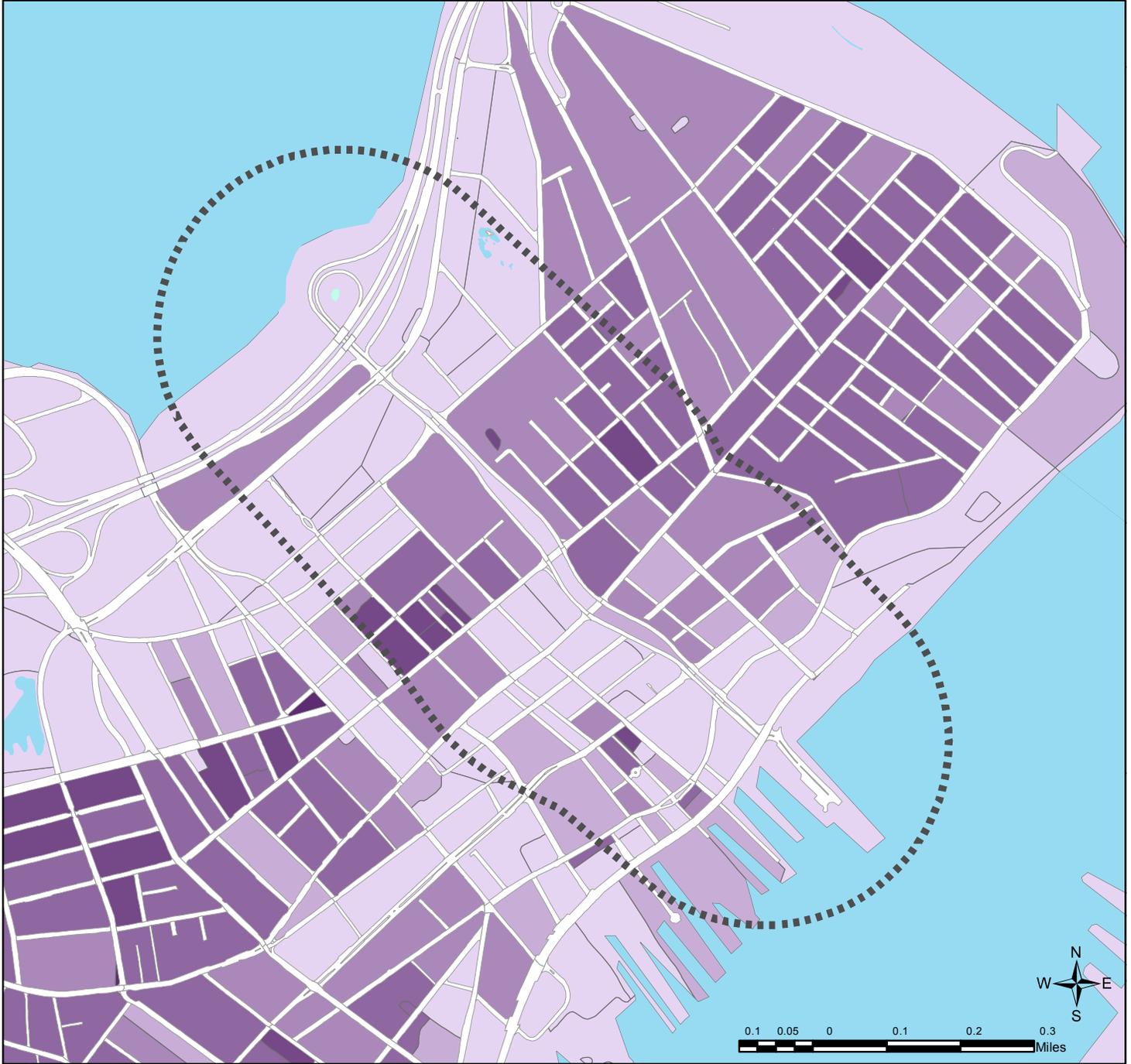


Exhibit 5.1 Population Density

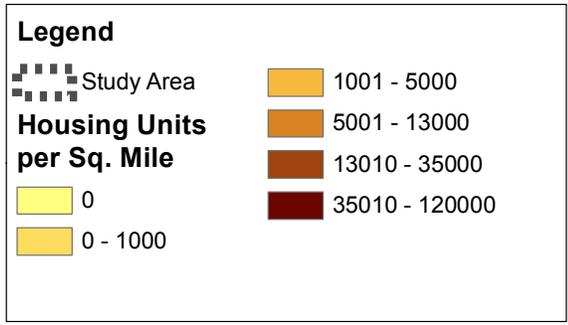
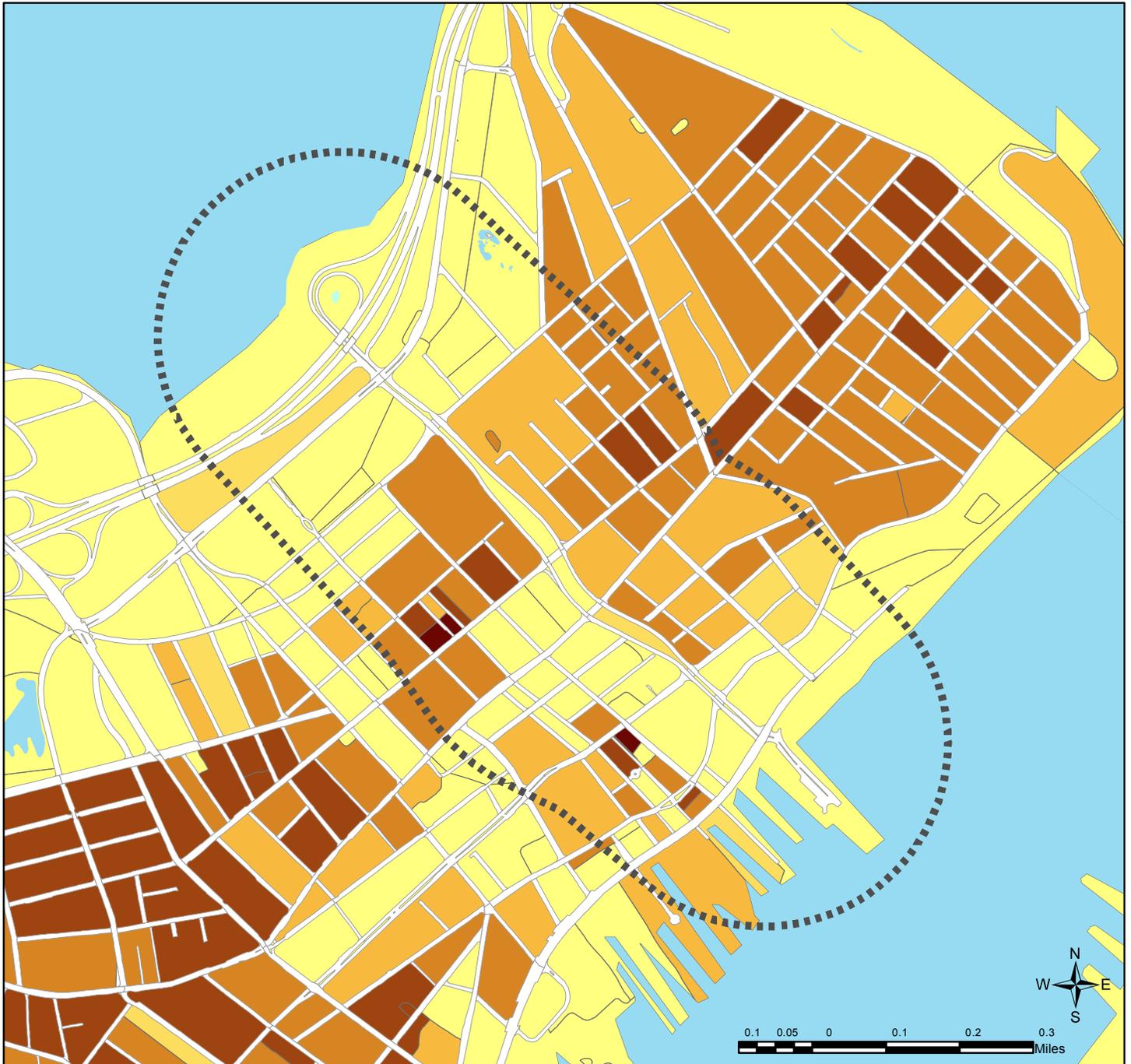


Exhibit 5.2 Housing Density

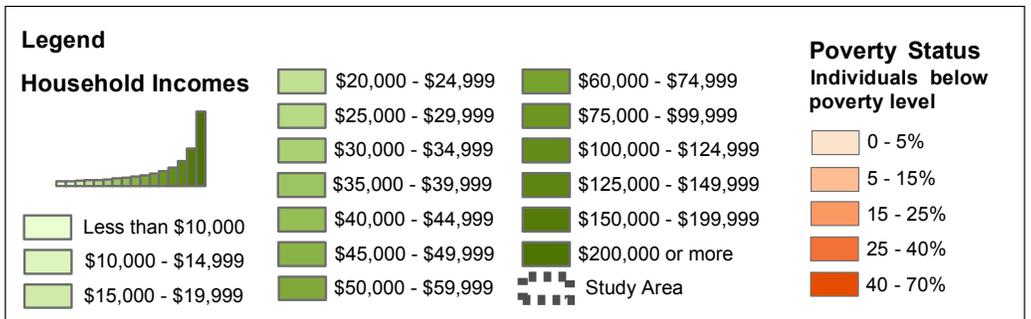
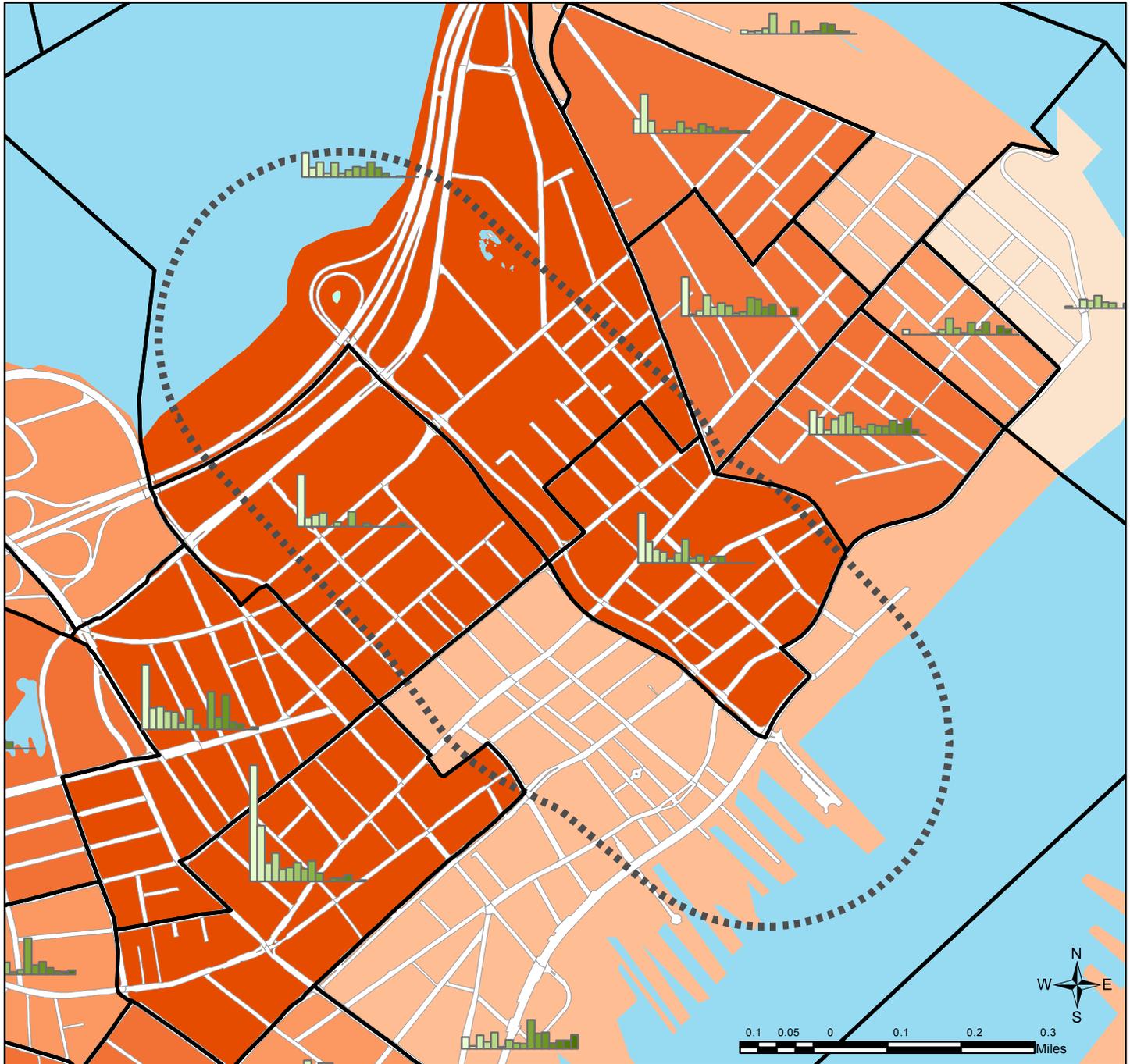


Exhibit 5.3 Incomes and Poverty

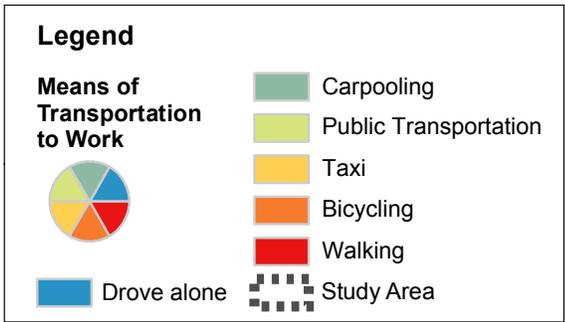
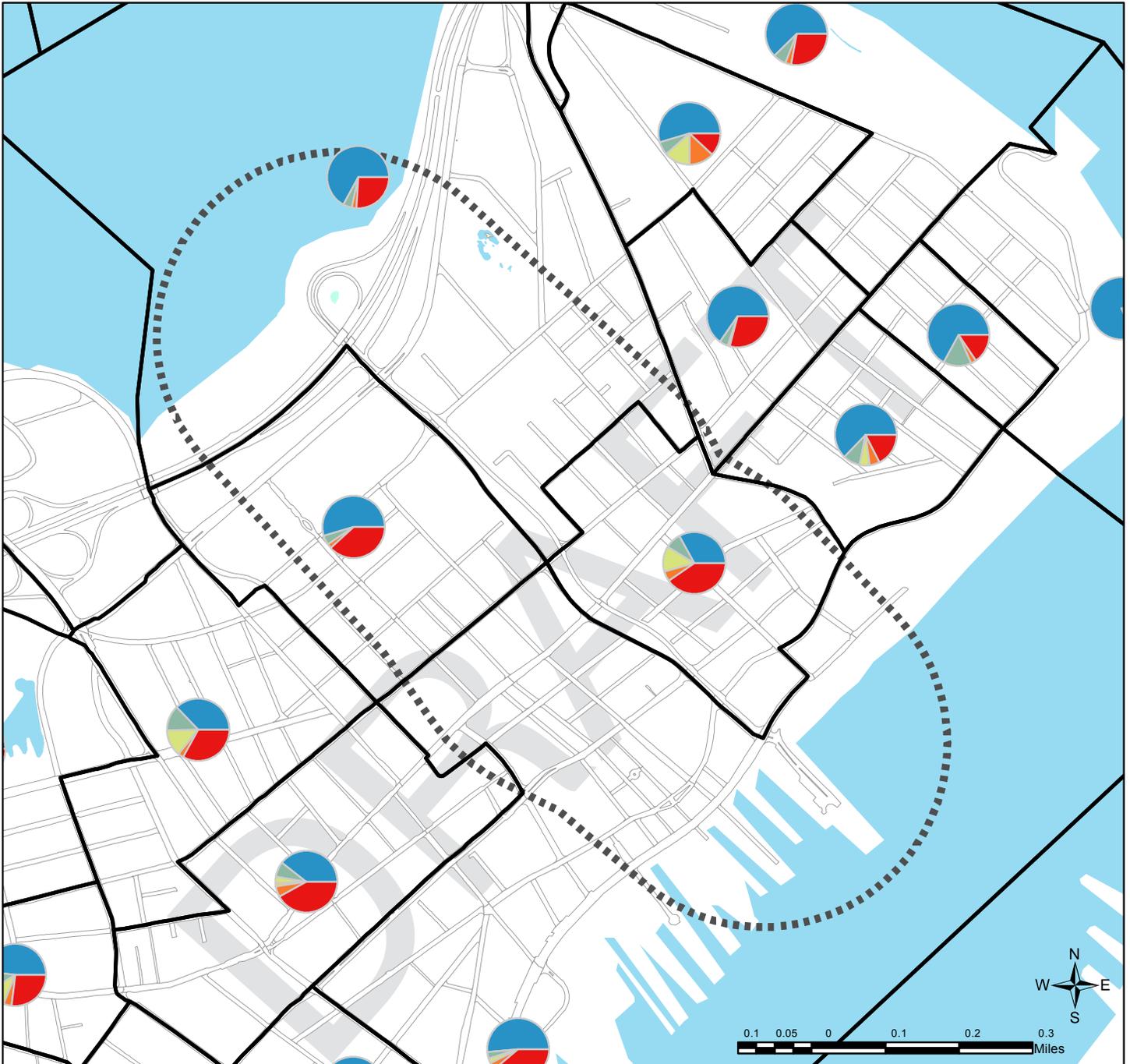


Exhibit 5.4 Means of Transportation to Work

## 5.2. Land Use and Zoning Analysis

The Portland zoning code is a Euclidean code. The Euclidean Zoning code, which is the most conventional and widely used form of zoning in the United States, emphasizes and regulates land-use. In Euclidean Zoning the regulations are used to divide land into a range of zoning districts based on the land use permitted in the district, such as residential, commercial, industrial, etc. Within each zoning district, the amount of development permitted is specified in a range of development standards. Euclidean zoning is often blamed for the segregation of land uses leading to sprawl, although a move toward mixed-use districts has become more common and helps mitigate some of the sprawl effects of Euclidean zoning.

A more recent means of regulating development is called Form-Based Code (FBC) zoning. FBCs focus more on achieving a specific urban form than they do on land use. These codes address the scale and type of blocks and streets, relationships between buildings and the public realm. A regulating plan is used to designate an area by the appropriate form of development (e.g. character), rather than by land use.

A form based code will typically incorporate three primary elements in the following priority:

- Vertical form (architecture)
- Site design
- Land-use

Also included are elements to protect existing character and neighborhoods by providing a broader range of housing and neighborhood service typologies than those typically included in Euclidean zoning. This relieves pressure for a sprawling development pattern and provides for a more efficient use of land. FBCs require a more intensive public process for approval because they seek to establish a clear community

vision for an area in the early part of the process. They incorporate design elements into the code to encourage a more urban and pedestrian friendly environment. FBCs are becoming more common because they allow more complex land-uses with less text. They rely more on tables and graphics to support the development outcome than text.

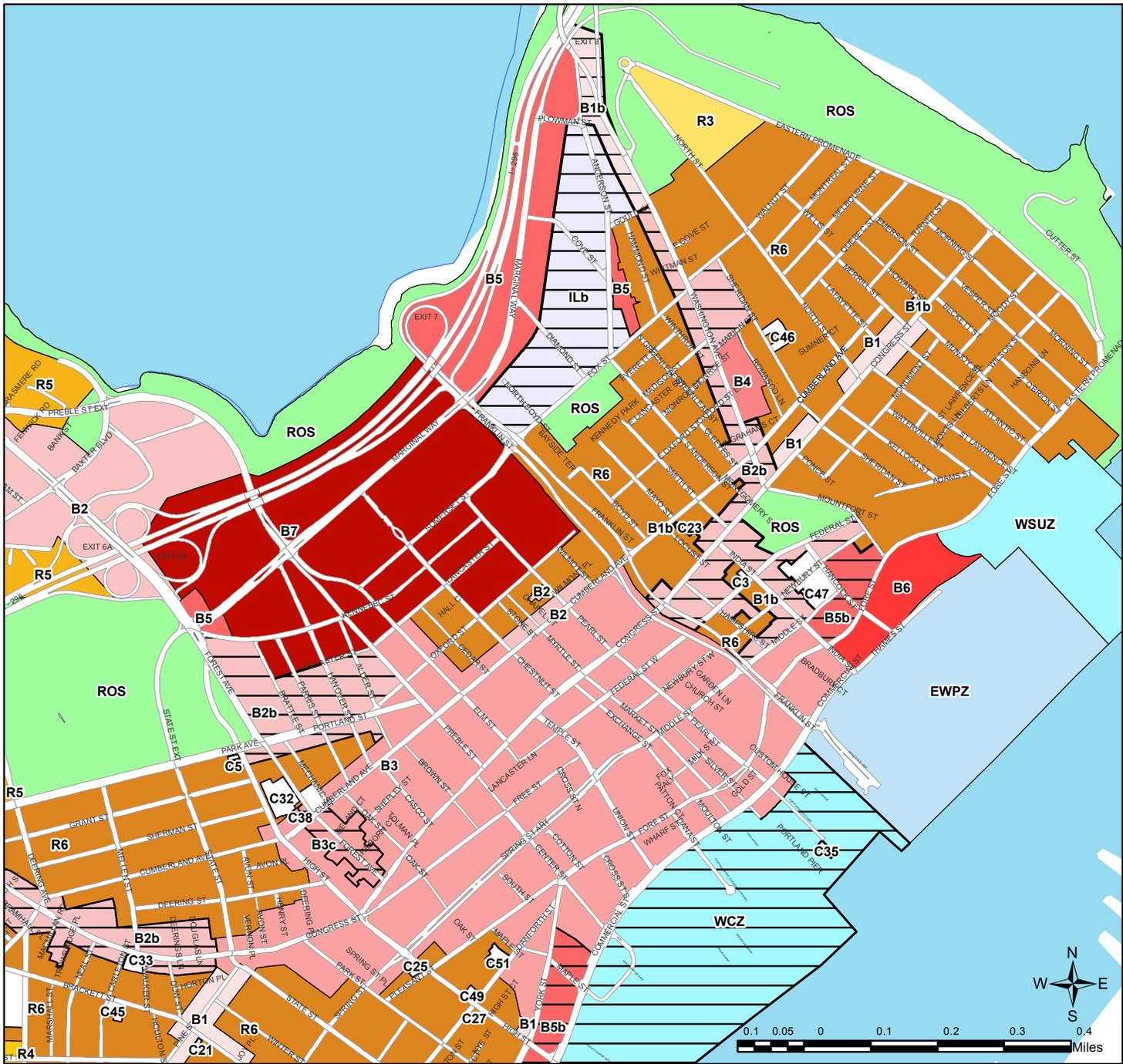
As already stated, Portland currently follows a Euclidean code structure, which means that specific zoning codes are applied to different portions of the corridor, as designated on the zoning map (Exhibit 5.5). The map shows that non-residential uses are the dominant land uses along the Franklin Street Corridor. Non-residential uses are zoned B-2, B-2b, B-5 and B-7. Some residential zoning is located directly adjacent to the corridor. Typically these uses are mid-density apartments with the exception of Franklin Towers, which is a high density, 16-story high rise condominium complex. The abutting residential areas are mostly zoned R-6. These residential and other uses are shown in the Land Use Map (Exhibit 5.6).

Creating an attractive and active pedestrian environment on Franklin Street will require changes to the regulatory structure currently governing the area and more specifically for the pedestrian areas of the street. The current Euclidean code provides direction in larger areas and will require a complex mixed use code to achieve a more pedestrian friendly environment.

The division created by the current zoning is enhanced because Franklin Street creates an “edge condition” between two general areas; the residential areas on the east side of the corridor (East Bayside and India Street neighborhoods) and the businesses and warehouses districts on the west side (Bayside and downtown) also shown in the Land Use Map. Although the street appears to act as a buffer between the two areas, this is a strongly Euclidean zoning approach; it actually segregates the neighborhoods and their accompanying uses. In some cases, cross streets have been closed, further dividing the neighborhoods. This will be discussed further in the streetscape and bicycle and pedestrian assessments, particularly in relation to the fact



Figure 5.1. Underutilized (in order): Warehouses, Urban Farm, Parking Lots



Legend				

Exhibit 5.5 Zoning Map

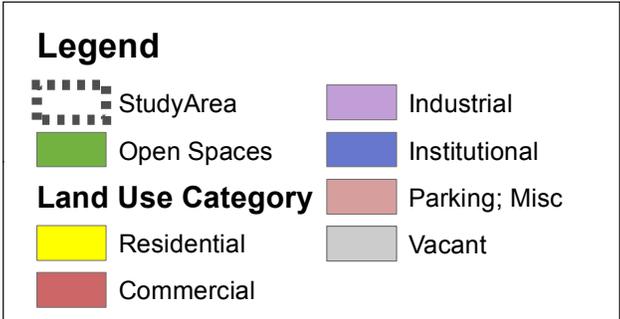


Exhibit 5.6 Land Use Map



that desire lines (i.e. worn pathways in the grass) still exist where these connections have been lost. The presence of the median, while a pedestrian crossing refuge and stormwater management tool, adds to this division of neighborhoods.

The opportunities for land uses along Franklin Street are not currently being realized. The Franklin Street corridor has a considerable amount of underutilized areas such as parking lots, community gardens, the median, and large warehouses. As it currently exists on the Franklin corridor, the residential and commercial is lower density and not strongly associated with the street. Residential often turn their backs or sides to Franklin orienting themselves to abutting or adjacent streets. In addition, residential uses have large setbacks contributing to a lack of pedestrian activity on Franklin. Likewise, the commercial uses are oriented toward cross streets.

Land uses have very different characteristics on different portions of the corridor. The land-uses in the western portion of the corridor tend more towards warehouse and larger format uses such as middle sized box retail and distribution.

The ease of access to the freeway supports these larger format uses. While they are not as pedestrian friendly in their current configuration, they may offer some opportunity. Although it is difficult to envision these areas as mixed use neighborhoods, these larger lots provide development intensification opportunities. In fact, the larger lot sizes required by warehouse distribution and businesses make land consolidation simpler. Land ownership in this area is already consolidated on the larger blocks (see Exhibit 5.9), some of which are vacant industrial blocks already slated for (re)development. (See Exhibit 4.1) Studies are necessary regarding utilities and drainage to understand the cost for intensification of uses in this area.

The potential uses for larger lots include mixed use, multi-family or office. Mixed use environments provide enhanced activity areas and better serve non-motorized as well as motorized traffic. It appears that larger lots on the west side of Franklin Street provide the opportunity for simpler land consolidation and increased property values that can lead



Exhibit 5.7 Lack of Association with Street (West to East): Backs of Residential and Residential Set-back



Exhibit 5.8 Lack of Association with Street (West to East): Commercial Oriented away from Franklin towards Side Streets

to effective mixed use development. The eastern portion towards Commercial Street do have mixed use in the area, but as previously stated these mixed-use areas are oriented toward cross streets.

Franklin Street provides a unique opportunity to change its character by adopting the strengths of both the more residential and more industrial/commercial areas. In essence, this would involve creating an “ecotone” or mixed use zone, with activity times for longer periods (16 to 18 hours) throughout the day. To accomplish this, changes in the regulatory and incentive structure for the street and the surrounding land uses is necessary. Policies should reflect the long term vision for the area providing incentives with a simple and predictable outcome for density.

The current zoning as described above does not encourage the type of pedestrian level development necessary to create a mixed-use, walkable community. Achieving the type of quality needed in a pedestrian oriented experience will require a complex mixed use Euclidean zone with associated design guidelines to insure that key elements are located in nodes or a Form-based code that focuses on mixed-use pedestrian oriented environments. The FBC option would provide more flexibility and would likely be simpler, but may require more public input in the beginning.

The entire corridor should not have the same type of land-use zoning. Key nodes for development should be incentivized with more intense land uses focused at gathering places. Potential locations for such nodal zoning could be Pearl Street, as well as the Congress and Cumberland intersections with Franklin Street. These intersections have greater potential for heights and greater density, similar to Franklin Towers. However, unlike Franklin Towers, a mixed use podium would be encouraged with the accompanying land uses. Guidelines should be in place to ensure quality in development and pedestrian/transit orientation.

Pedestrian and vehicular links from surrounding communities should be carefully reviewed in locating mixed use node locations. When doing this review, consideration of surrounding land uses should be analyzed to understand the impacts on residential quality of life and business economics.

In summary, some opportunities supported from the analysis of the existing land use and zoning information include the following:

- Modifying regulatory structure which supports the vision for the area.
- Creating an intensified land-use area combining the most desirable characteristics of the various surrounding neighborhoods.
- Providing modified zoning in nodal locations such as Pearl Street, Congress, and Cumberland.
- Removing or reducing the median to provide larger development sites to change the character of the street to a more pedestrian oriented community and also enhancing compression from side to side
- Decreasing setbacks on the street to provide additional developable land while adding pedestrian interest.
- Providing walkable links to shopping areas on Franklin to Somerset, including reconnection of disconnected streets, to better access nearby land uses.
- Adapting the currently underutilized land around the Boyd Street urban farm and Portland Housing Authority building into plot into a more dense community garden/urban orchard. These are intended to be food forests where elements of urban forestry, urban agriculture, edible landscaping, and agro-forestry are combined. These community gardens use land more efficiently and often complement surrounding residential uses.



## 5.3. Streetscape Analysis

### URBAN DESIGN

This sections describes the streetscape conditions, primarily along Franklin Street. The analysis starts on the northern part of the corridor, and moves southbound first and then returns northbound. The narrative is somewhat summarized in images in Exhibit 5.12. This image also divides the corridor into three zones with street sections in each zone. The single letter designation (e.g. A-A') are those that cross Franklin Street and will be used in the development of alternatives. The side street cross sections, labeled with double letters (e.g. AA-AA'), are only provided here for purposes of better understanding the existing conditions. The streetscape narrative is also divided into these three zones and the street section diagrams are included where appropriate.

Overall, the layout and physical structure of the Franklin Street corridor seems to have been designed to the benefit of effective movement of motor vehicles and, in doing so, has obscured assets and accentuated shortcomings. This design ethic of cars over people and their neighborhoods has diminished views and architecture and limited access to neighborhoods; it threatens public health and safety of pedestrians. Yet the underlying fabric of this section of the City is strong and careful analysis of the existing conditions can unravel the heavy-handed urban tailoring of the 1960s.

#### Zone A

For many commuters, entrance onto the corridor comes under the 295 Overpass, a ubiquitous Interstate Highway green-steel threshold without charm or celebration - the dark mail slot of shadow in daytime and murky farewell at the end of the commuter's day. The overpass limits pedestrian and bicycle access from Marginal Way over to Back Cove. (Figure 5.4) The under deck environment of the overpass is dim and loud during the daytime hours and lighted only by passing headlights at night.

The introductory windshield view of Franklin Street



Figure 5.2. Cathedral and Franklin Towers in background, Planet Dog and ATT in foreground right

immediately at Marginal Way includes friendly commercial in the foreground (Planet Dog and ATT). But on the high horizon looms Franklin Towers, an asymmetric counterweight to the lovely Cathedral of Immaculate Conception, a historic landmark. These two masses, the brutal block and the delicate inspired form, are emblematic of the design challenges and opportunities of this urban corridor: lighten the weight of the Towers and accentuate the Cathedral. This challenge calls for the rebuilding of an infrastructure that promotes the best of this urban fabric, that accommodates the community, and that softens what can be softened.



Figure 5.3. Bayside Terrace



Figure 5.4. Under the overpass towards Back Cove

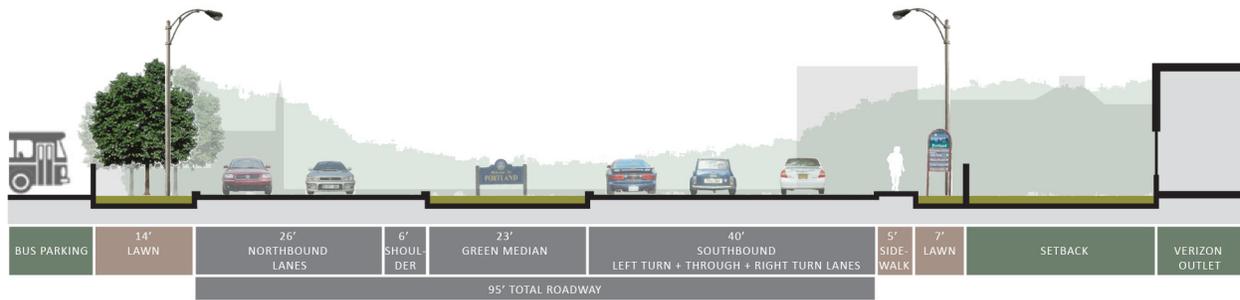


Exhibit 5.10 Section A-A'

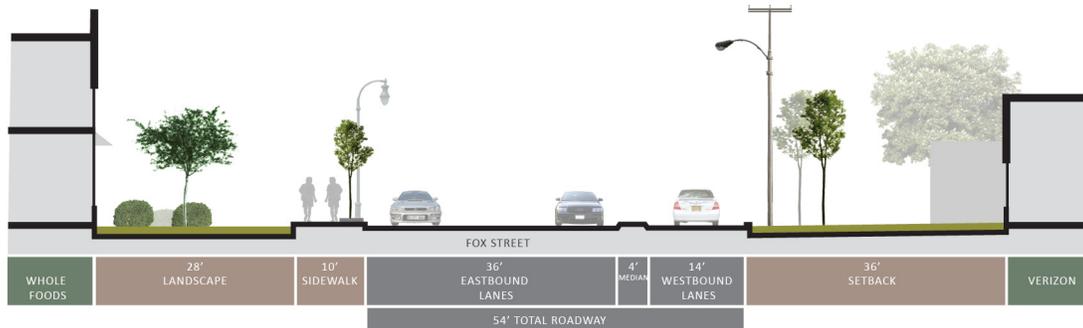


Exhibit 5.11 Section AA-AA'

Currently, the Zone A corridor (Exhibit 5.12) is not visually unified. There is neither spatial balance between opposite sides of the roadway nor a consistent visual rhythm along the corridor.

For example, on the north side, the Charter Bus Depot building is set back from Franklin Street and dominated at the roadway edge by bus parking while, on the southern side of the roadway, Planet Dog, Verizon and Whole Foods are closer to the roadway, with parking accommodated in the rear. Exhibit 5.10 shows a section cut through a typical stretch of streetscape in Zone A. It is evident that both sides of the roadway are honest declarations of commercial enterprise; there is no mistaking the activities that occur behind the phalanx of buses and the marketing genius of Planet Dog, Verizon and Whole Foods, making these enterprises readily understood. (Figure 5.2) However, there is nothing tying these two sides of the corridor into a unified streetscape. The

rhythm and unity that might be provided by similar street trees, sidewalk treatment and light poles, for example, are absent.

The pleasant architecture of the Whole Foods building speaks to the potential of private enterprise to enliven and embellish the visual quality of this street. The side street abutting Whole Foods (Exhibit 5.11) is equally embellished. It far outweighs the back-of-house views of the Portland Housing Authority's Bayside Terrace development across Franklin Street. A well-kept, community-supported residential neighborhood, Bayside Terrace is defined by an institutional chain link fence and no public sidewalk. The yards are green and mown, generally free of litter, non-threatening but, also, non-descript.

Another distinguishing characteristic of the two sides of the street is the setback of street trees from the edge of roadway. The Bayside Terrace Neighborhood's chief asset is its tree mass (Figure 5.3). These street trees are mature and fairly



Figure 5.5. Trees in median obscure the Cathedral.jpg



2 Towards I-295 Entry Ramp



5 Absence of Sidewalks



9 Pedestrian footpaths



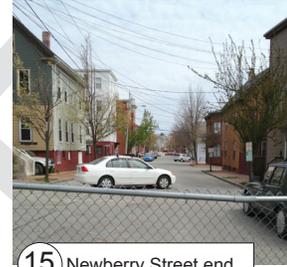
10 Cathedral of Immaculate Conception



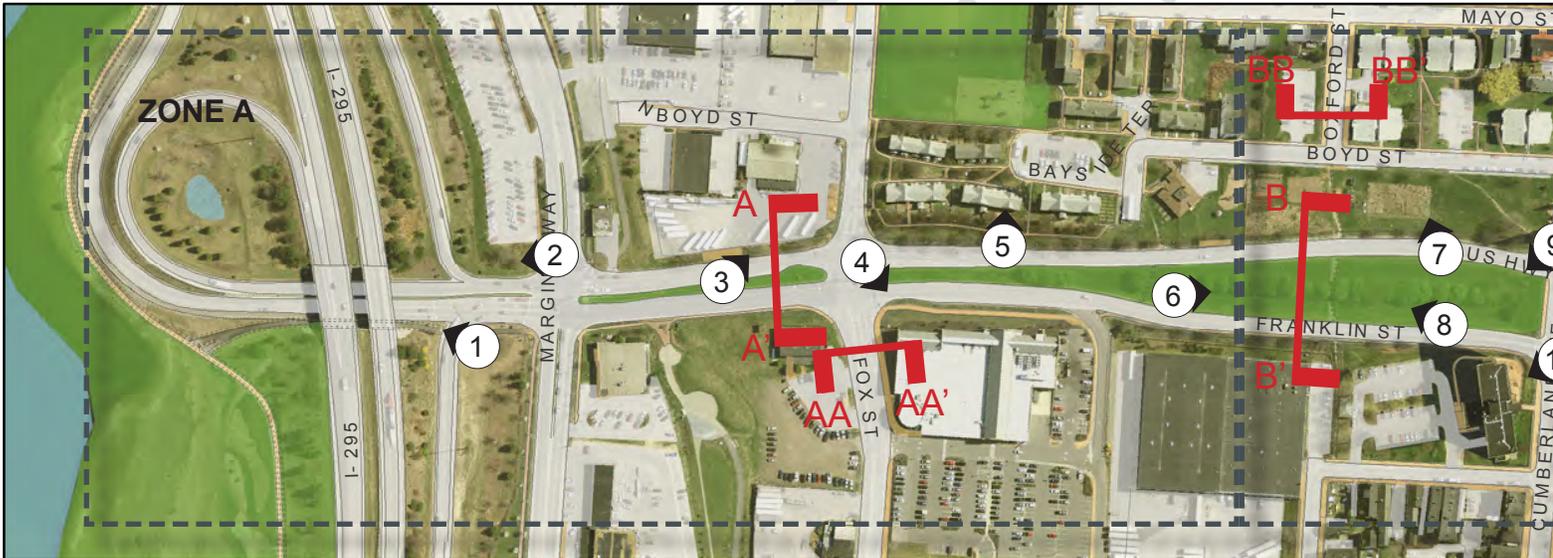
3 View towards Charter bus depot



7 Slope down to Oxford Street



15 Newberry Street end



1 Connection to Bayside Trail under I-295



6 Wide sloped central median



8 Pedestrian footpaths across Franklin Street along desire lines connecting buildings



4 Whole Foods and Verizon Retail Centres

Exhibit 5.12 Streetscape Photodocumentation



ulate Conception



17 Pedestrian connection



18 Urban Streetscape



20 Footpaths where sidewalk don't exist or are insufficient



19 Buildings towards Maine State Pier



22 Towards Maine State Pier



Broken ends of Oxford Street



11 Franklin Towers



12 Unkept sidewalk condition



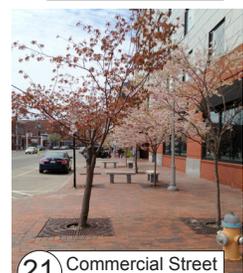
16 Towards Middle Street south



13 Slope up to Lincoln Park



14 Grade change up to the Courthouse



21 Commercial Street looking south

healthy, while the landscaping on the Whole Foods side of the street is immature. The trees along the Whole Foods property are set close to the roadway (Figure 5.6). Absence of planting soil and proximity to roadway pollution and deicing salts will inhibit their health and vigor; larger beds of soil held back from the roadway edge will ensure long-term tree health and larger size.

**Zone B**

The transition between Zone A and Zone B occurs after Whole Foods as the roadway rises in elevation towards Cumberland Avenue. The central median widens and the southbound roadway bends towards Franklin Towers. Exhibit 5.13 shows a section cut through a typical stretch of streetscape in Zone B. The wide median is planted with a mature row of large crabapple trees, which consistently, effectively and unfortunately screens the view of the lower half of the Cathedral for the entire approach up the hill (Figure 5.5).

The bulk of Franklin Towers could be visually screened by a healthy and mature stand of street trees planted between Whole Foods and the roadway edge, as suggested in Figure 5.7. The existing street tree planting at Whole Foods can never provide the level of visual screening of Franklin Towers that is warranted. Because they are located in a constructed area in the setback zone between roadway and sidewalk, they will likely remain small trees in poor health of little screening value.

Finding the balance between safe and comfortable sidewalks and large planting beds at the back of the sidewalk will be an essential aspect of public safety and visual screening for the corridor.

This kind of screening is achieved further up Franklin Street in the vicinity of the United Van Lines building, where street trees are planted at the back of the sidewalk and have ample soil volumes in the down slope gradient to the United building.

Narrowing the median and realigning Franklin Street toward the Cathedral to de-emphasize Franklin Towers would enhance views towards Cumberland Avenue. Reallocating space to widen sidewalks would benefit pedestrian foot traffic; adding a street furnishings zone would prove a sense of separation and offer pedestrian refuge. (Figure 5.8)



Figure 5.6. Whole Foods



Figure 5.7. Street trees can be utilized to screen Franklin Towers



Figure 5.8. Narrow sidewalks and vulnerable pedestrians

On the opposite side of Franklin Street, there is no sidewalk at the roadway edge. (Figure 5.9) A chain link fence separates the roadway from the open space along Boyd Street. The open field on Boyd sits below Franklin Street and is utilized in part by the Boyd Street Urban Farm, which are community



Exhibit 5.13 Section B-B'



**Exhibit 5.14 Section BB-BB'**

gardens. When Franklin Street was re-built, it effectively cut many of the cross streets along its route, including Oxford Street where vehicular travel was severed. Exhibit 5.14 shows a section through Oxford Street. The pedestrian need to cross at this point remains strong, as indicated by the chain link fence that has been knocked down and the worn path showing the continued use of the Oxford right-of-way as a cut-through.

Return to the inbound side of Franklin Street. As the road crests at Cumberland Avenue, the view of the Cathedral remains obscured by median plantings. The setback to Franklin Towers remains too close and the overwhelming scale and bulk of the building is dehumanizing (Figure 5.10).

Along with Congress Street, the Cumberland Avenue intersection serves as a primary gateway into the downtown Portland area (Figure 5.11). It is the pinnacle of Franklin Street and provides a great urban design opportunity. The presence of both the Cathedral and Franklin Towers on opposite corners emphasizes the significance of this intersection in the fabric of Portland. The view from southbound Franklin Street to the Cathedral is impressive; the Cathedral is the center of visual weight at this cross street. The view down Franklin Street is undistinguished at this point, being somewhat dominated by the row of pine trees that flanks and screens the large parking lot between Cumberland and Congress. The seating and picnic area at the foot of Franklin Towers is too close to the street and provides a limited refuge to the residents.

At car level, the formal hedge at the back of sidewalk obscures the view of the base of the Cathedral. The brick sidewalk is in poor repair and too narrow. Walking along this sidewalk at the height of the afternoon rush hour, without benefit of street tree shade or a safe setback from traffic, would not encourage another stroll. In general, the use of a



**Figure 5.9. Oxford Street and pedestrian cut through**



**Figure 5.10. Approaching the crest of the hill at Cumberland Avenue**



**Figure 5.11. Cumberland Avenue design opportunity**



consistent and strong vocabulary of street furniture, improved sidewalks, roadway and pedestrian lighting and street tree plantings will increase the value and prestige of this urban gateway.

Entering this intersection from the opposite direction, from Franklin Street heading northbound offers an entirely different visual experience. From this vantage the intersection is dominated not by the view of the Cathedral, but the opposing view of Franklin Tower (Figure 5.12). The existing evergreen tree plantings in the median suggest that a more statuesque, healthy and substantial planting could effectively reduce the visual bulk of Franklin Towers.

Additionally, the northbound crest of this intersection (Figure 5.13) might offer a view of the Back Cove and the hills of North Deering if the tree plantings in the median and on the corners were better designed and managed.

Returning to the southbound side of Franklin Street, the median remains excessively wide through the Congress Street intersection. The long row of White Pine trees that flanks the large parking lot between Franklin and Pearl Streets is in relatively good health but the original intent of the plantings – to screen the parking lot from Franklin Street – is now lost with the height of the trees and loss of their lower branches due to aging (Figure 5.14).

Despite the loss of screening for the parking lot, the substantial separation between the trees and the pollution of Franklin Street, along with ample planting soil has ensured a healthy row of pines. If screening of the parking lot remains

a high priority, additional screen plantings might be added at this location. As with the entire corridor, plantings should be limited to trees and turf. The addition of flowerbeds and shrub borders will substantially increase landscape maintenance costs without a strong visual benefit. In addition, controlling vermin in these kinds of municipal garden beds can be challenging.



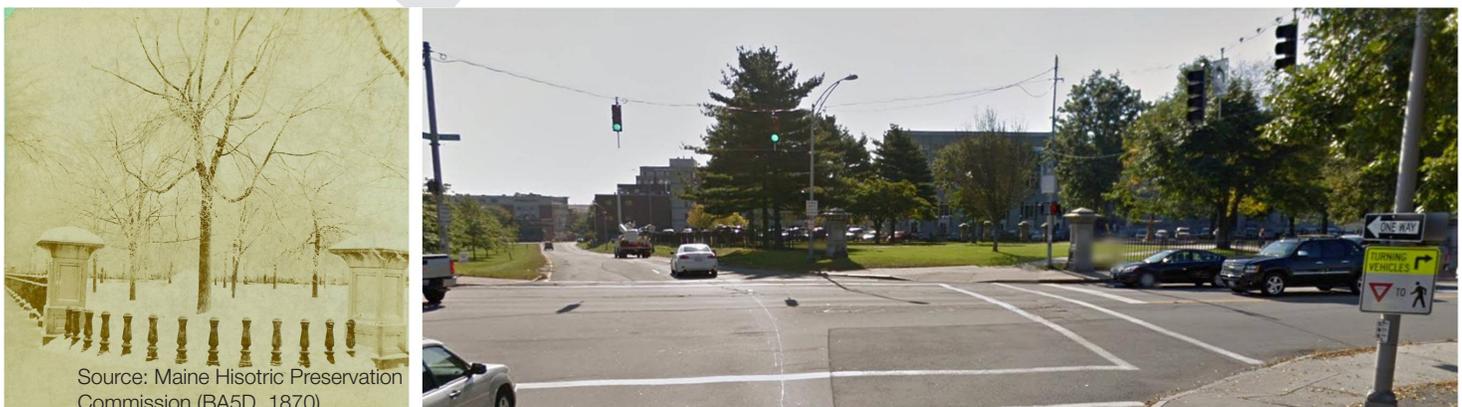
Figure 5.12. Franklin Street northbound at Cumberland Avenue



Figure 5.13. Views of Back Cove and hills of North Deering



Figure 5.14. Cumberland to Congress



Source: Maine Historic Preservation Commission (BA5D, 1870)

Figure 5.15. Lincoln Park entrance from Congress Street intersection



The Congress Street intersection does not have the architectural presence of the Cumberland Avenue intersection; however, it is flanked on the south corner by Lincoln Park. A former jewel of Portland in the late 1800s and early 1900s, Lincoln Park has since declined from both the reconstruction of Franklin Street in the 1960s and the onset of Dutch elm disease, which destroyed the dominant canopy trees.

Currently, a widely spaced pair of granite columns defines the entrance into the Park; these were once end posts making a long row of bollards that defined the limits of the park entrances at Franklin Street. (Figure 5.15)

Of critical note, Lincoln Park was once at the same elevation as Franklin Street. The graceful arching walkways within the Park, the surrounding fence, and the broad sidewalk on Franklin Street defined an intimate park-to-streetscape relationship. The reconstruction of Franklin Street lowered the roadway relative to Lincoln Park and eliminated the sidewalk. The once gracious gateway into the park at Federal Street is now a parking lot. (Figure 5.16)

Exhibit 5.15 and Exhibit 5.16 are street sections cut at the same location, and illustrate how a section of the park was taken over for the construction of Franklin Arterial.

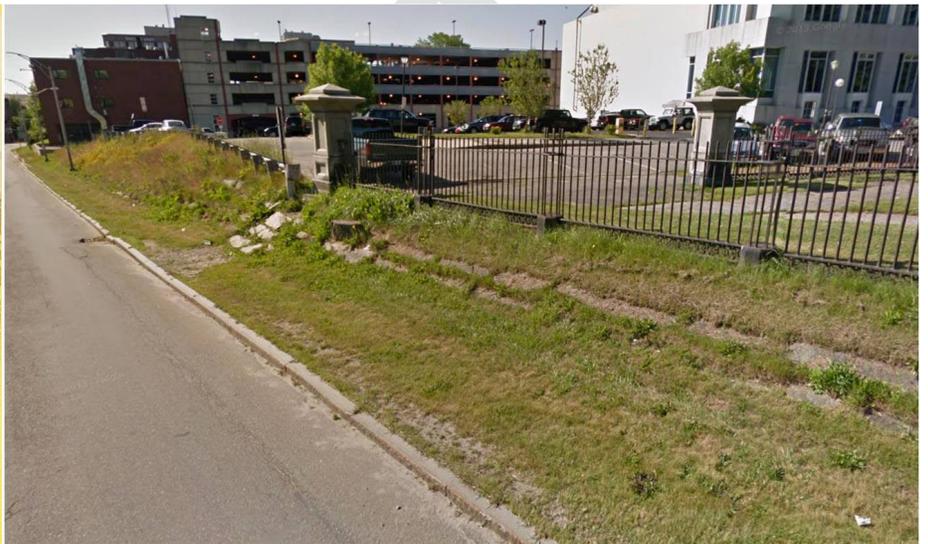
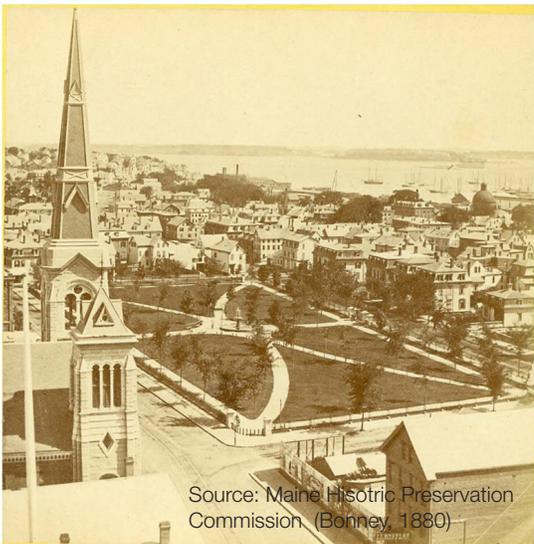


Figure 5.16. Lincoln Park front along Federal Street

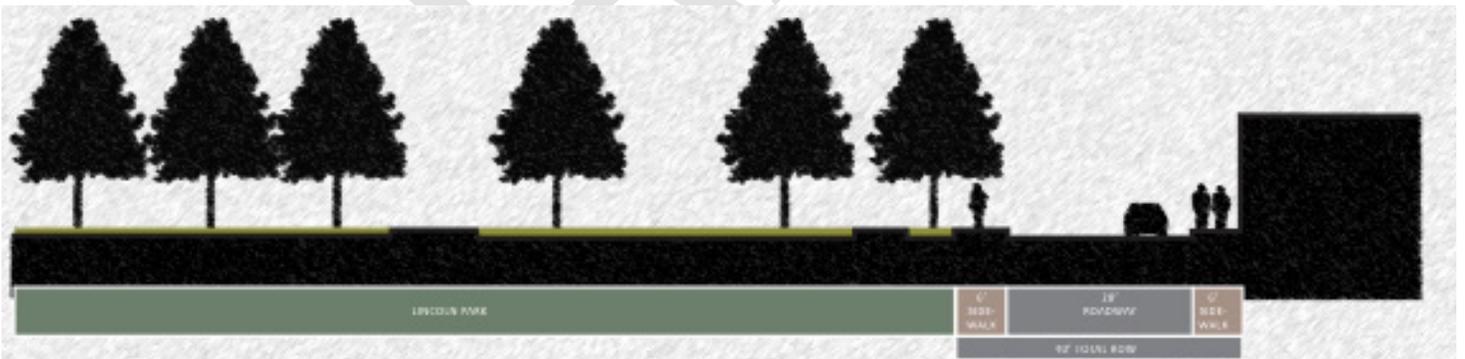


Exhibit 5.15 Section C-C' cutting Lincoln Park as it was before 1966

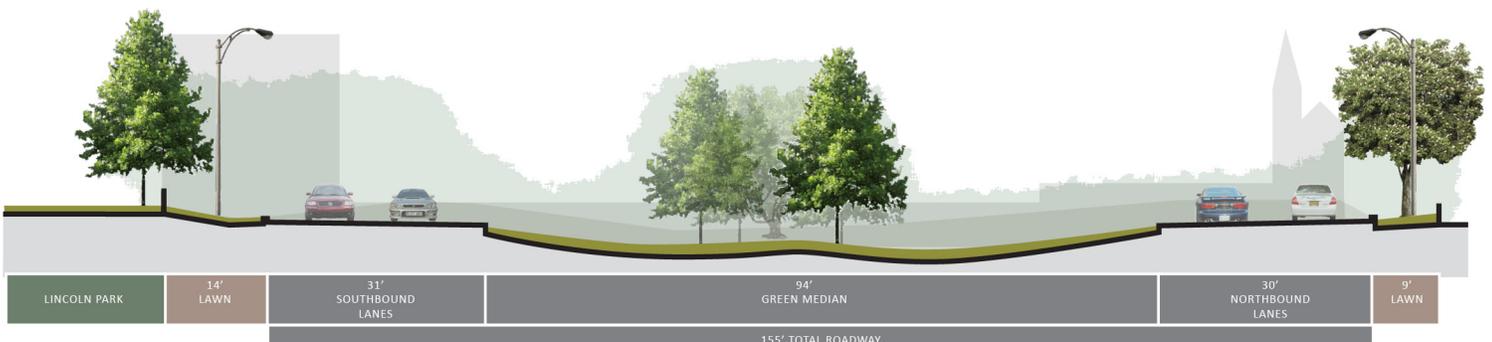


Exhibit 5.16 Section C-C' as in current day

Reestablishing a level grade connection between Franklin Street and Lincoln Park, and providing a wide, safe and comfortable sidewalk can be achieved. Currently, the pedestrian cut-through between the severed Federal Street is not a comfortable or safe environment for pedestrians. (Figure 5.17)

The Franklin Street median remains wide at Lincoln Park and could provide the requisite horizontal space for the realignment of Franklin Street between Congress and Middle Street.

As with Oxford Street, Federal Street was cut in half and ceased to serve as a cross street when Franklin Street became the dominant arterial connector. Reconnection of Federal Street would reestablish the importance of the Federal Street corner entrance to Lincoln Park and would return the stature of the Park within the fabric of the City streets.

### Zone C

From Congress Street southward to Middle Street, the median is planted with Pin Oaks. These trees appear to have thrived in the median. If the median is altered and these trees are available for transplant, then all efforts should be made to find alternate homes for them elsewhere in the City. Pin Oaks

transplant well and these trees have quite a bit of value as street trees.

There is no sidewalk on Franklin Street southbound between Congress Street and Middle Street. While it is possible to walk above Franklin Street in Lincoln Park and along the Courthouse parking lot between Federal and Newbury Streets, once beyond Newbury Street a pedestrian must cross over to Pearl Street to regain access to Franklin Street from Middle Street. Unless Franklin Street is realigned to pull away from the dead end of Newbury Street, the existing concrete retaining wall that supports the Newbury Street pavement will need to be removed to allow for the installation of new sidewalks. (Figure 5.18)

The sidewalk landscape makes an inconsistent amenity to an urban streetscape in Zone C, from Middle Street down to Commercial Street, including the small intersection at Fore Street. The mix of historic brick buildings and new infill brick construction on the north side of Franklin Street follows a common setback from the curb line. The brick facades are uniform in color and texture. Building heights are comparable. The new Hampton Inn building bows to the precedents and sits well with the buildings up and down Franklin. (Figure 5.19)



Figure 5.17. Pedestrian cut through at Federal Street



Figure 5.18. Newbury Street Retaining Wall



Figure 5.19. Design Unity

However, the design unity exhibited on the north side of Franklin Street is absent at Commercial Street, where the façade of the Ferry Terminal parking garage pays some homage to visual unity but remains a parking garage. The terminus of Franklin Street seems to visually leak away to the left without a façade wall equal in scale to the Ferry Terminal. (Figure 5.20)

The three lanes of Franklin Street result in a narrow sidewalk along side the Hilton Garden Inn, completely out of balance with the building's scale. (Figure 5.20)

However, on the opposite side of the street, the distance from building to curb line is significantly greater, suggesting balance of green space at back of curb on both sides of the lower end of Franklin at Commercial. (Figure 5.21)

Exhibit 5.18 shows a section through Franklin Street between Middle and Fore Streets. This western part of the street is seen to be well design with wide sidewalks, pedestrian lighting and street trees.

The length of Franklin Street from Middle Street northward to Cumberland Avenue - beyond the unified blocks below - is one of visual disharmony: remnant building lots, views into side yards, overgrown vegetation, absent sidewalks, blocked streets and parking lots. This is the unfinished edge of urban renewal that has lingered for 50 years (Figure 5.22).



Figure 5.20. Commercial Street Visual Gap



Figure 5.21. Looking North from Commercial Street



Exhibit 5.17 Section DD-DD'



Figure 5.22. Visual Disharmony Middle Street Northward

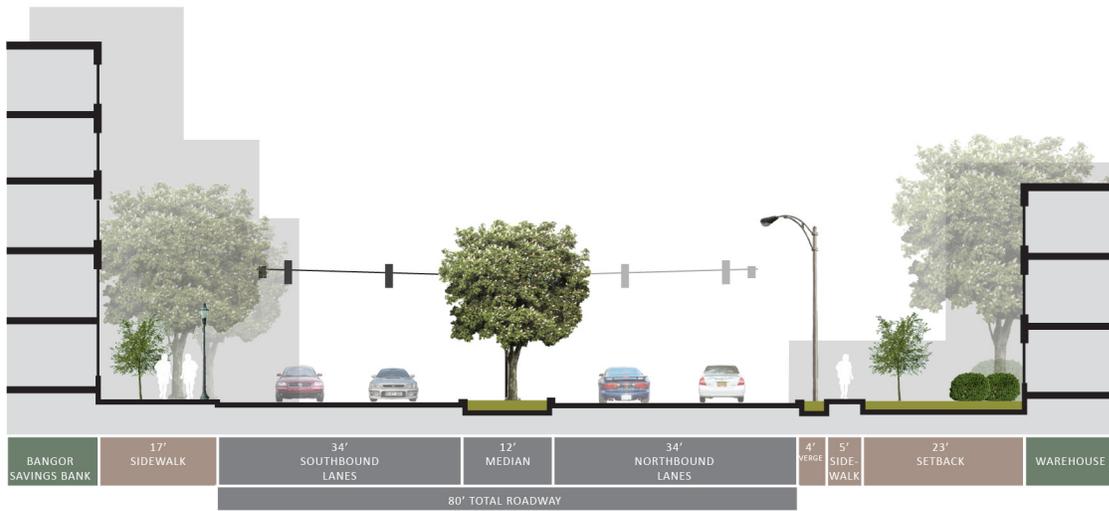


Exhibit 5.18 Section D-D'

Exhibit 5.17 shows a section through Middle Street to which the visual disharmony continues

It is not until Congress Street that this neighborhood edge returns to a sense of its former self and the fabric of the community re-emerges. (Figure 5.23)

The last piece of streetscape from Congress to Cumberland is quirky but pleasant. It has appropriate color, texture and scale. (Figure 5.24)

Showcasing this segment of Franklin Street is one of the opportunities that will come easy in the design process. It is well kept and has survived the urge to make better in preceding decades. Other areas of Franklin Street will likewise lend themselves to great improvements in the decades to come.



Figure 5.23. Congress Street

### STORMWATER MANAGEMENT

Site inspection indicates that stormwater runoff from the roadway surfaces of Franklin Street are dealt with in two general ways: 1) in the higher elevations of Franklin Street by directing roadway runoff to the large median at the center of the roadway and 2) in the lower elevations by directing runoff to catch basins and piping.

From the area of Bayside Terraces up over the hill southward to Middle Street, there does not seem to be a stormwater piping system to accommodate runoff from Franklin Street.

Where the roadway median is relatively wide, stormwater is directed inward to the suppressed median, designed to absorb the surface runoff. The limited number of catch basins/area drains visible within the median suggests that the soils are sufficiently pervious and the width and extent of the median are great enough to accept most of the stormwater flow from impervious surfaces, with some quantity entering



Figure 5.24. Congress to Cumberland Streets

the storm drain system. (Figure 5.25)

The outside gutter lines of Franklin Street from Bayside Terraces to Middle Street do not appear as if they have been scoured from stormwater runoff. Weeds are growing in several areas of the gutter and at other areas, roadway debris and leaf litter have accumulated; both indicate that stormwater is flowing away from the curb rather than running in concentration along the gutter line. (Figure 5.26)



From Middle Street southward to Commercial and from Fox Street northward, where the median strips narrow, surface runoff is captured by catch basins and piped away, presumably directly into the Fore River to the south and Back Cove to the north. (Figure 5.27)

Currently, much of Franklin Street appears to flow into the wide and suppressed median, where some limited treatment likely occurs, and then into catch basins and piping. Moving forward, the new design for Franklin Street will need to meet current Maine Department of Environmental Protection standards for stormwater treatment, including treatment of the first flush or stormwater flow from impervious surfaces.

**GRADING**

Exhibit 5.19 shows cut and fill at 5' contours between the historic contours (black lines) and the current elevations (blue lines). Current elevations are obtained from the City of Portland's GIS database. Historic contours have been interpolated from nearest adjacent roadways. We assume that city streets to the northeast (Boyd and Hampshire) and to the southwest (Pearl and Wilmot) have not been altered to the extent that Franklin Street has. The adjacent streets give us a sense of how significantly the landform along Franklin Street was altered in the 1960s.

These sketches show the interpolated historic grades compared against current conditions. Areas of red indicate depths of excavation, with the lighter red indicating depths of



Figure 5.25. Storm Drain in Median



Figure 5.26. Stormwater is directed toward the median



Figure 5.27. Catch Basins



Exhibit 5.19 Cut (in red) and Fill (in blue) Analysis for Franklin Street

cut up to five feet and the darker red indicating depths of cut greater than five feet. The landform under Franklin Street from Congress to Middle was substantially excavated to achieve current roadway gradients. (Exhibit 5.20)

The Franklin Street landform from Cumberland to Fox (Exhibit 5.21) was altered in a more complex way. The roadbeds were raised by fill earthwork, with fill possibly coming from excavated earthwork between Congress and Middle Streets.

The median between the filled roadbeds is cut into the existing hillside. The bottom or toe of this section of the Franklin Street gradient was pushed northward several hundred feet. This accounts for the steep embankments on either side of Franklin Street north of Cumberland. This additional fill smoothed out the gradient on Franklin Street, making the roadway less steep.

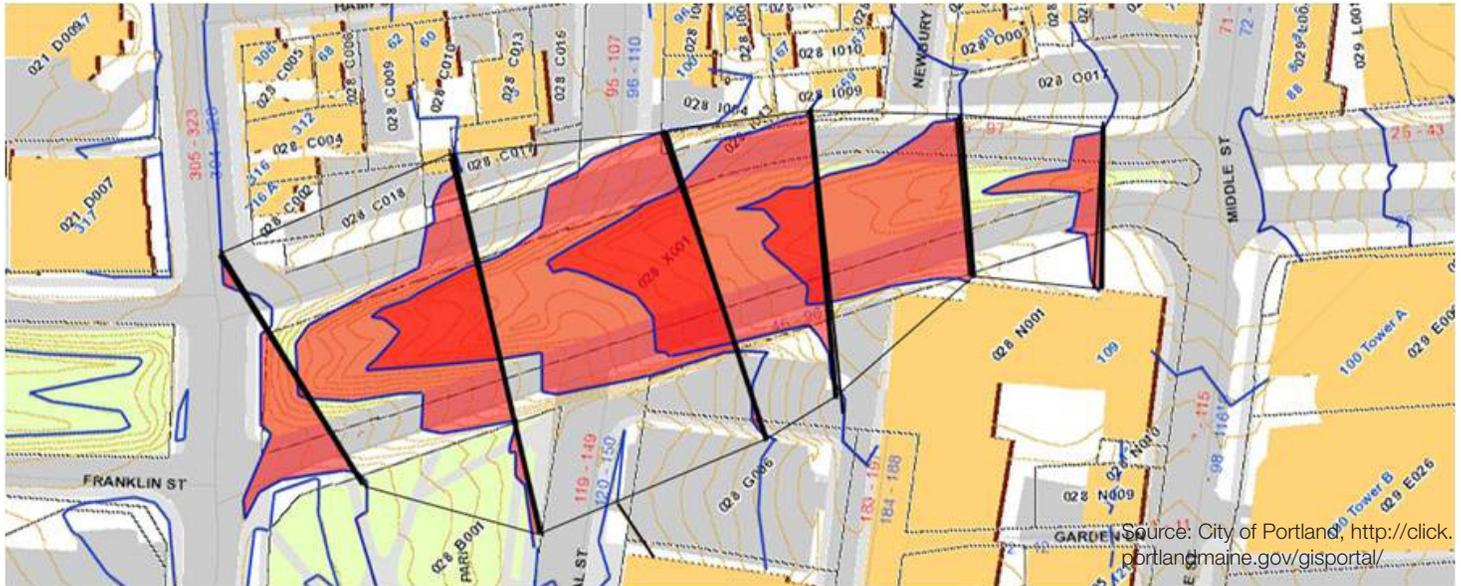


Exhibit 5.20 Cut and Fill Analysis – Congress Street to Middle Street

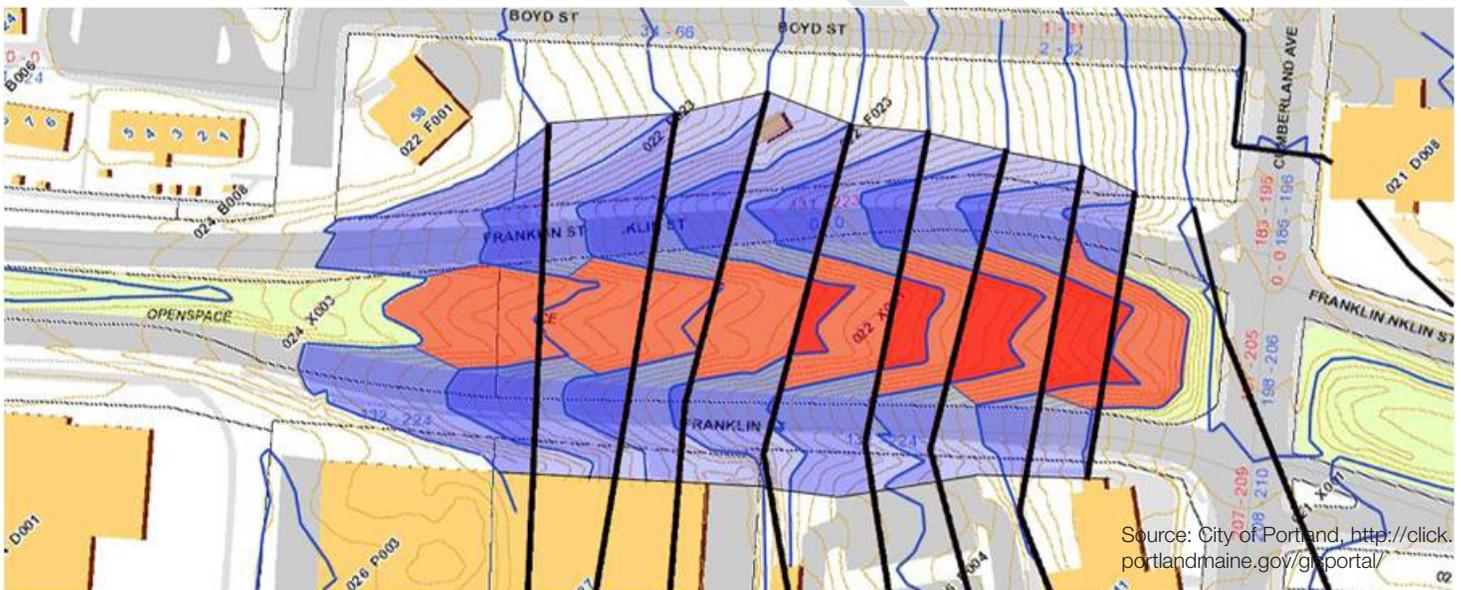


Exhibit 5.21 Cut and Fill Analysis – Fox Street to Cumberland Avenue

**EXISTING VEGETATION**

Vegetation along Franklin Street is dominated by turf and trees. There are few instances of shrub planting within the right-of-way of Franklin Street and those appear to be primarily volunteer species growing at the base of fencing. (Figure 5.28)

Trees grow as street trees along the edges of the roadway and in the median. Species diversity is strikingly limited within the existing urban forest of Franklin Street. Four Genera appear to make up the great majority of tree species: Quercus (Oak), Pinus (Pine), Gleditsia (Honeylocust) and Malus



Figure 5.28. Volunteer Shrubbery

(Crabapple). Any future landscape planting should strive to plant a greater diversity of both Genera and species.

From Congress Street through to Marginal Way, the dominant trees within the median are a mature variety of crabapple that is growing on a slightly raised berm down the center median. (Figure 5.29)

From Congress Street to Middle Street, the dominant deciduous shade tree in the median is Pin Oak. (Figure 5.30)

Along the length of Franklin Street, the dominant street tree is Honeylocust. (Figure 5.31)

Beyond the right-of-way there are many instances of tree and shrub planting on adjacent properties that are part of the visual tableau of Franklin Street. New planting plans for Franklin Street will need to take full advantage of these “borrowed” landscapes.

Moving forward, all trees will need to be planted in a minimum of 800 cubic feet of good topsoil per tree in order to grow to a mature size within a reasonable time frame. Keeping the trees in open planting beds at the back of sidewalks, keeping them far away from the snow throw zone that typically becomes contaminated with deicing salts and not planting trees in tree pits in sidewalks, will be essential to the long-term success of the street tree program.

### SIDEWALK PAVEMENT

Existing pavements are a mix of different materials – asphalt, concrete and brick. (Figure 5.33-5.36) Generally the older sidewalks are in poor conditions. Concrete pavement is stained. Asphalt pavement has settled and weeds can be seen growing at the back of curb. Old brick sidewalks have settled at back of curb and no longer drain adequately. The newer brick sidewalk at the Whole Foods facility is in good condition.

In many locations there are no sidewalks. Often paths have been worn in the turf along the side of the roadway indicates the need for defined pedestrian routes.

Moving forward, the new streetscape might consider utilizing concrete sidewalks for the full length of Franklin Street. It is a reliable pavement system that can provide many decades of use without significant loss of integrity. It is relatively inexpensive.

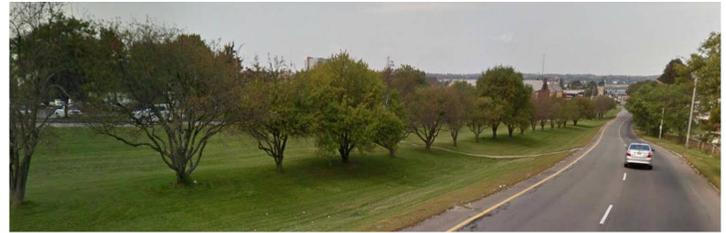


Figure 5.29. Crabapples in median



Figure 5.30. Pin Oaks in median



Figure 5.31. Honeylocust Street Trees and ‘borrowed’ trees in Bayside Terrace



Figure 5.32. Pine hedge along parking lot between Cumberland and Congress



Figure 5.36. Asphalt Sidewalk



Figure 5.35. Concrete Sidewalk



Figure 5.34. New Brick Sidewalk



Figure 5.33. Old Brick Sidewalk

Using a brick unit paver to accentuate cross streets or to highlight landmarks like the Cathedral should be considered. However, a brick band at the back of the curb to create a festive edge is discouraged; and brick settlement often accompanies this detail, creating a significant tripping hazard at the edge of a vehicle travel lane.

In addition to meeting Universal Design guidelines, sidewalks should be sufficient in width to give people a sense of safety; a furnishing zone between the main path of travel and the roadway that is wide enough to accommodate street lighting and roadway signalization could address this as well.

### STREET LIGHTING

Franklin Street is lighted with cobra head light fixtures. (Figure 5.38) While these may give adequate light to the driving and pedestrian surfaces, the style of fixture provides little aesthetic appeal.

Moving forward, a unified lighting system of attractive,



Figure 5.37. Worn paths in turf indicating need for paved sidewalks

for cross streets has blades scaled for a typical city street, where the building-to-building distances are tight and there is a consistency to building facades. Considering the breadth and scale of Franklin Street, the size and scale of the street signage blades are too small, disappearing within the visual

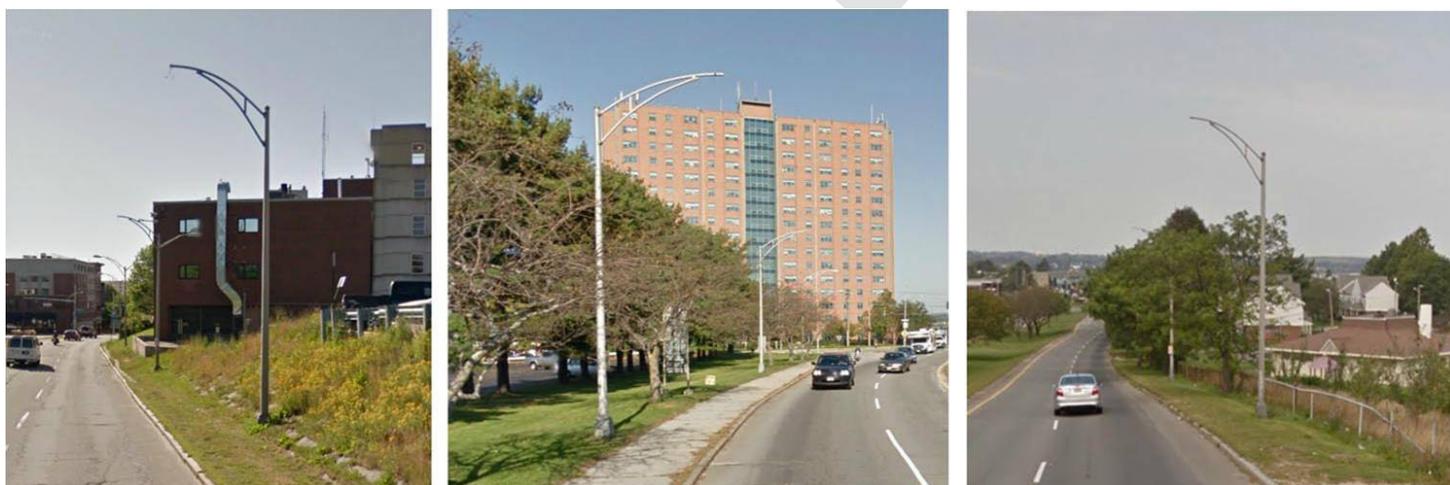


Figure 5.38. Cobra Head Lighting

contemporary, roadway-scaled poles and light fixture along Franklin Street should be considered. Night time pedestrian use of the corridor is limited, so the cost of installing pedestrian scaled light poles might be limited to the cross streets.

### SIGNAGE AND WAYFINDING

At its widest, the Franklin Street corridor is considerably broader than most, if not all, of the city streets in Portland. This expanse, combined with the tracts of open space on either side of the roadway – the Boyd Street Urban Farm, the parking lot bounded by Cumberland, Congress and Pearl, and Lincoln – create a unique experience for pedestrians and motorists alike.

At intersections along Franklin Street, the street name signage

context of Franklin Street.

In addition to the street signs, Portland has installed a series of wayfinding signs along the southbound side of Franklin Street. Installed to alert visitors arriving at Portland of attractions and destinations, the sign system is adaptable and able to be used at specific locations along the corridor. The signs do not appear to be lighted.

These wayfinding signs are understated. Colors are muted shades of green, blue and mauve. They blend with the landscape and, without being spot lighted at night, become nondescript, invisible and inadequate. (Figure 5.39)

The Franklin Street corridor lacks celebration of arrival, landmarks or place making statements. Arrival into Portland on Franklin Street at Marginal Way is not acknowledged by signage, lighting or architecture. (Figure 5.41)

Likewise, at the other end of Franklin Street, there is no recognition of the corridor or the entry into Old Port and the Waterfront – major commercial destinations - other than the small and unobtrusive Wayfinding Sign. (Figure 5.40)

The I-295 Overpass is a missed opportunity to create a relatively inexpensive gateway threshold into Portland. As noted previously, the dark slot of the Overpass is a visual and physical barrier to pedestrian and bicycle traffic. Lighting the underside of the Overpass would brighten the threshold and make it more inviting both day and night. (Figure 5.4)



Figure 5.39. Street Signs out of scale with the size Franklin Street



Figure 5.40. Portland Sign



Figure 5.41. Lack of Arrival Signage while entering Franklin Street at Marginal Way.

DRAFT

## 5.4. Natural Environmental Conditions

This section establishes the baseline environmental conditions within the study area for use in identifying any potential constraints on transportation improvements and future land development. The data provided is based on previously published information and has not been verified by actual detailed field studies or assessments.

### PHYSICAL GEOGRAPHY

Physical geography studies the spatial patterns of natural features and phenomena on the Earth and the interaction of these phenomena to human activities (<http://world-geography.org>). The City of Portland encompasses about 30,800 square miles and has a population of just over 66,000 people. Portland is the metropolitan hub of Maine's south coast region and attracts 3.6 million tourists every year.

The Portland Peninsula is bounded by water on three sides; Back Cove to the north, Casco Bay to the east, and Portland Harbor to the south. Franklin Street is one of the main transportation arteries providing access to the peninsula and downtown areas.

### SOILS AND GEOLOGY

The United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) Soil Survey for Cumberland County identifies the following soils within the study area (see Exhibit 5.22 and the description of soil types below).

Symbol	Soil Name	Description
Au	Au Gres loamy sand	Deep, somewhat poorly drained, formed in glacial outwash plains, hydrologic soils group B
Cu	Cut and fill land	Excavated soil material and bedrock that have been redistributed to depths from 2 to 15 feet, highly variable characteristics
DeB	Deerfield loamy sand	Deep, moderately well drained, coarse-textured, formed in sands of glacial outwash origin, hydrologic soils group B
HIB, HIC	Hinckley gravelly sandy loam	Deep, excessively drained, moderately coarse-textured, formed in glacial outwash deposits on terraces and eskers, hydrologic soils group A
So	Scarboro sandy loam	Deep, very poorly drained, moderately coarse to coarse textured, formed in glacial outwash, hydrologic soils group D

The Maine Geological Survey, Surficial Geology Map, Exhibit 5.23 (Portland West Quadrangle) identifies two formations within the study area, including the Presumpscot Formation in the lower elevations closer to Back Cove and near Commercial Street and Till in the higher elevations near extending down from Congress Street. The Presumpscot Formation is characterized as silt, clay, and minor sand deposited on the sea floor during the late glacial marine submergence. Till is characterized as loose to very compact, poorly sorted, mostly nonstratified mixture of sand, silt and gravel-sized rock debris deposited directly from glacial ice. The area of till generally aligns with the areas of Hinckley soils that are identified on the NRCS Soil Maps.

Exhibit 5.24 shows the bedrock geology within the study area. Towards Back Cove, the bedrock is classified as the Eliot Formation within the Merrimack Group. This formation is fine-grained medium gray migmatized and non-migmatized quartz-plagioclase-biotite phyllite and the formation is strongly sheared throughout. Bedrock closer to Portland Harbor and the easterly side of the study area is classified as the Spring Point Formation within the Casco Bay Group. This formation is medium greenish gray actinolite-biotite-chlorite-plagioclase-quartz schist.

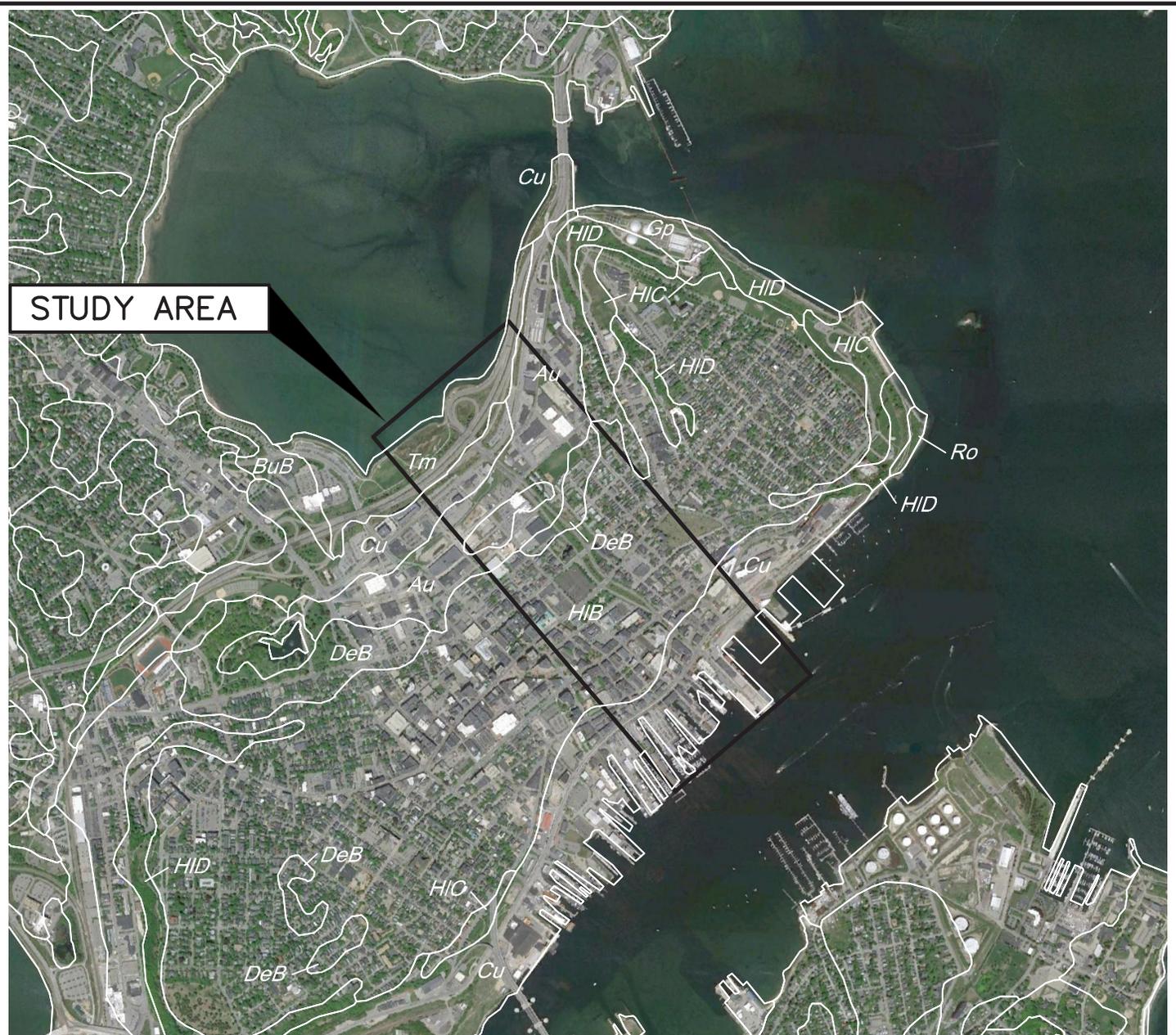
It should be noted that the study area is an urbanized area, thus the native soils have been disturbed over the years. The extent of Back Cove has changed significantly over the past 200 years. In 1837 the Cove extended to Lancaster Street. As recently as 1940, the water line extended to Marginal Way in the vicinity of Franklin Arterial (Back Cove Fill History, Portland, 1837-2003, <http://www.mainememory.net/artifact/11967/>). The fill that was used to fill in Back Cove has, among other sources, consisted of the debris from the Great Fire of 1866. This is exemplified in that many of the newer buildings along Marginal Way are constructed on pile-supported foundations.

### WETLANDS

The National Wetlands Inventory (NWI 2013) was established by the US Fish and Wildlife Service in 1974 to conduct a nationwide inventory of U.S. wetlands to provide its biologists and others with information on the distribution of wetlands and to aid in wetland conservation efforts. NWI developed a wetland classification system that is now the official classification system and the Federal standard for wetland classification. The NWI relies on identifying and classifying wetlands from aerial imagery. Based on available NWI data (see Exhibit 5.25), there are no wetlands in the study area.

### GROUNDWATER AND SURFACE WATER RESOURCES

Based on the Maine Geological Survey, Significant Sand and Gravel Aquifers Map, Exhibit 5.26 (Portland West Quadrangle), the study area is not located over a significant sand and gravel aquifer. The City of Portland is served by public water, provided by the Portland Water District. It is not anticipated that any



**LEGEND:**

- Au - AU GRES LOAMY SAND
- BuB - BUXTON SILT LOAM, 3 TO 8 PERCENT SLOPES
- Cu - CUT AND FILL LAND
- DeB - DEERFIELD LOAMY SAND, 3 TO 8 PERCENT SLOPES
- Gp - GRAVEL PITS
- HIB - HINCKLEY GRAVELLY SANDY LOAM, 3 TO 8 PERCENT SLOPES
- HIC - HINCKLEY GRAVELLY SANDY LOAM, 8 TO 15 PERCENT SLOPES
- HID - HINCKLEY GRAVELLY SANDY LOAM, 15 TO 25 PERCENT SLOPES
- Ro - ROCK LAND
- Tm - TIDAL MARSH

Exhibit 5.22 Soils

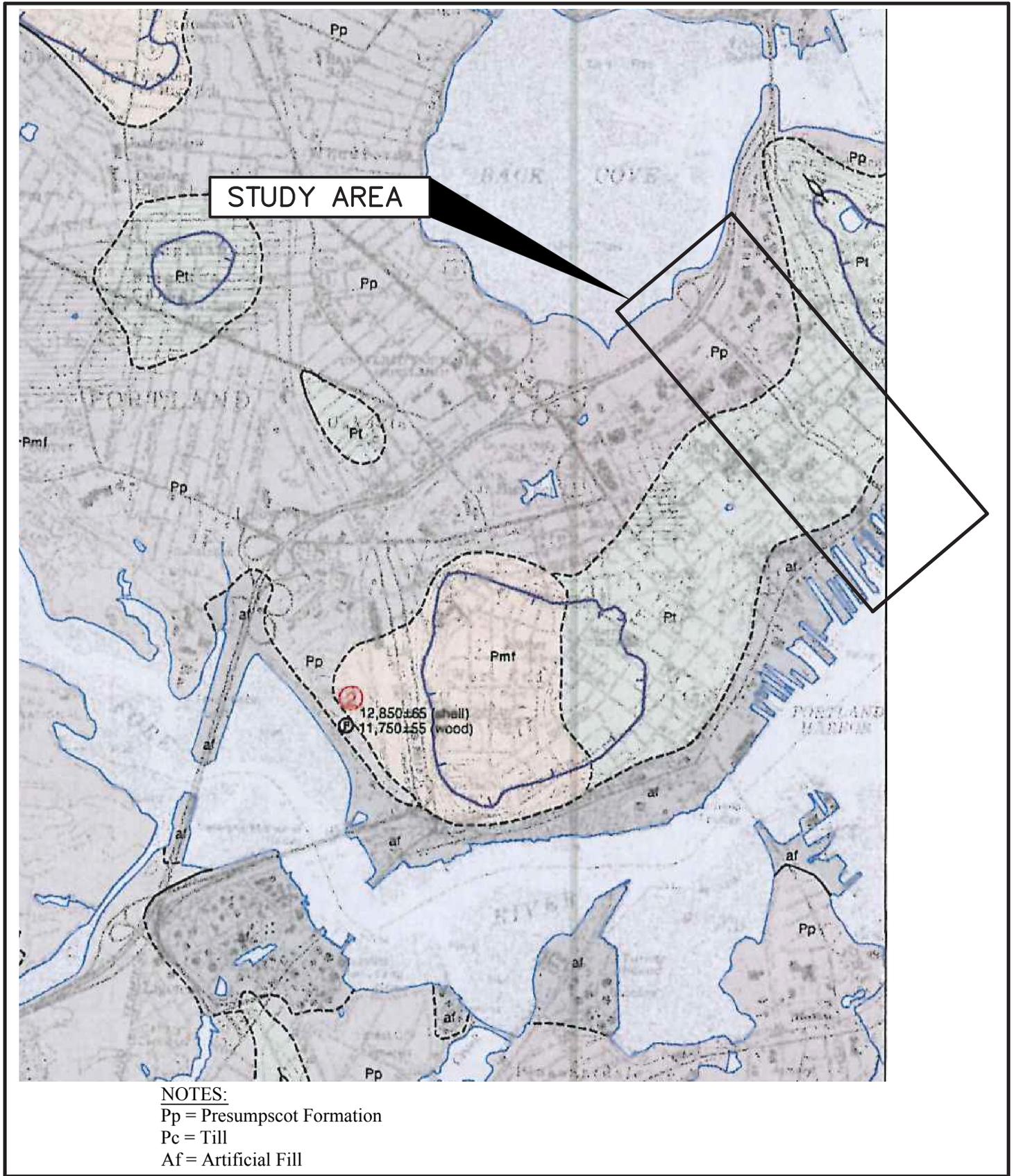


Exhibit 5.23 Surficial Geology



project work within the study area would detrimentally impact groundwater resources.

The study area ranges in elevation from about 9 feet near Marginal Way and Commercial Street to approximately 70 feet above mean sea level near Congress Street (Figure 1). Back Cove and Portland Harbor are the main surface water resources located at either end of the study area. Drainage from the project area is collected in an enclosed drainage system and currently discharges to a combined sewer system. The City of Portland has recently received proposals for a 3.5 million gallon long term combined sewer storage conduit that will be located in the vicinity of Marginal Way.

The Clean Water Act established the National Pollutant Discharge Elimination System to regulate wastewater discharges from point sources. In the State of Maine, the Maine DEP has delegated authority to oversee and issue wastewater discharge permits. The Maine Construction General Permit defines activity requiring a permit for stormwater discharges activities that disturb one acre or more (MDEP 2006).

#### VEGETATION AND WILDLIFE HABITAT

The entire study area is located in an urbanized area. Requests for information on rare, threatened and endangered plant and wildlife species will be sent to Maine Department of Inland Fisheries & Wildlife, Maine Natural Areas Program and the U.S. Fish and Wildlife Service, but we do not anticipate that any species will be listed in the vicinity of the study area.

#### AQUATIC HABITAT

The study area is bounded by Back Cove to the west and Portland Harbor to the east. Back Cove is a small tidal area surrounded by urbanized areas. The City is in the process of reducing combined sewer discharges to Back Cove through a combination of sewer separation and storage conduit

projects. Portland Harbor is a vital commercial hub and working waterfront. Both of these water resources provide habitat for marine life. We do not anticipate that any work associated with the Franklin Street project would result in the degradation of these resources. In fact, improvements to stormwater management systems, in conjunction with the City's Tier III Long Term Control Plan will continue to result in reductions in combined sewer overflows and subsequent improvements to water quality in and around the tidal waters surrounding the Portland Peninsula.

#### RARE, THREATENED AND ENDANGERED SPECIES

The study area is located within an urbanized area as identified on the USGS Topographic Map (Portland West & East Quadrangles). Exhibit 5.27 shows that there are no habitats for inland wading waterfowl and shoreland feeding and roosting birds within the study area. Requests for information on rare, threatened and endangered species will be sent to Maine Department of Inland Fisheries & Wildlife, Maine Natural Areas Program and the U.S. Fish and Wildlife Service, but we do not anticipate that any species will be listed in the vicinity of the study area.

#### FLOODPLAIN

The Federal Emergency Management Agency (FEMA) publishes Flood Insurance Rate Maps (FIRM) covering the City of Portland. Exhibit 5.28 shows the floodplain within the study area based on the Revised Preliminary Flood Insurance Rate Map dated June 7, 2010. The map shows that the northern end of Franklin Street, up to about the junction of Somerset Street is located within Zone X, which is the area inundated by the 500 year flood (0.2% recurrence interval).

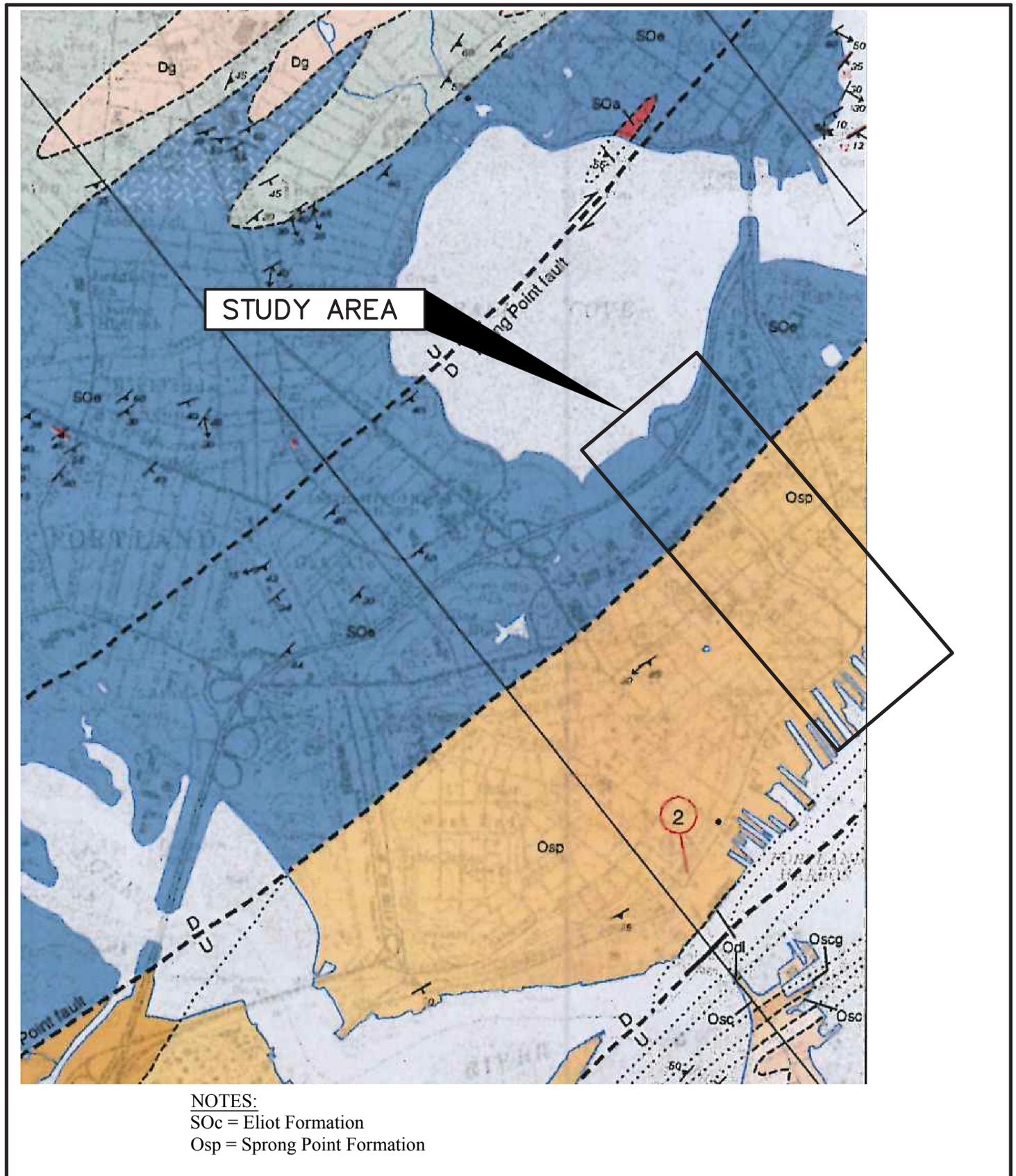
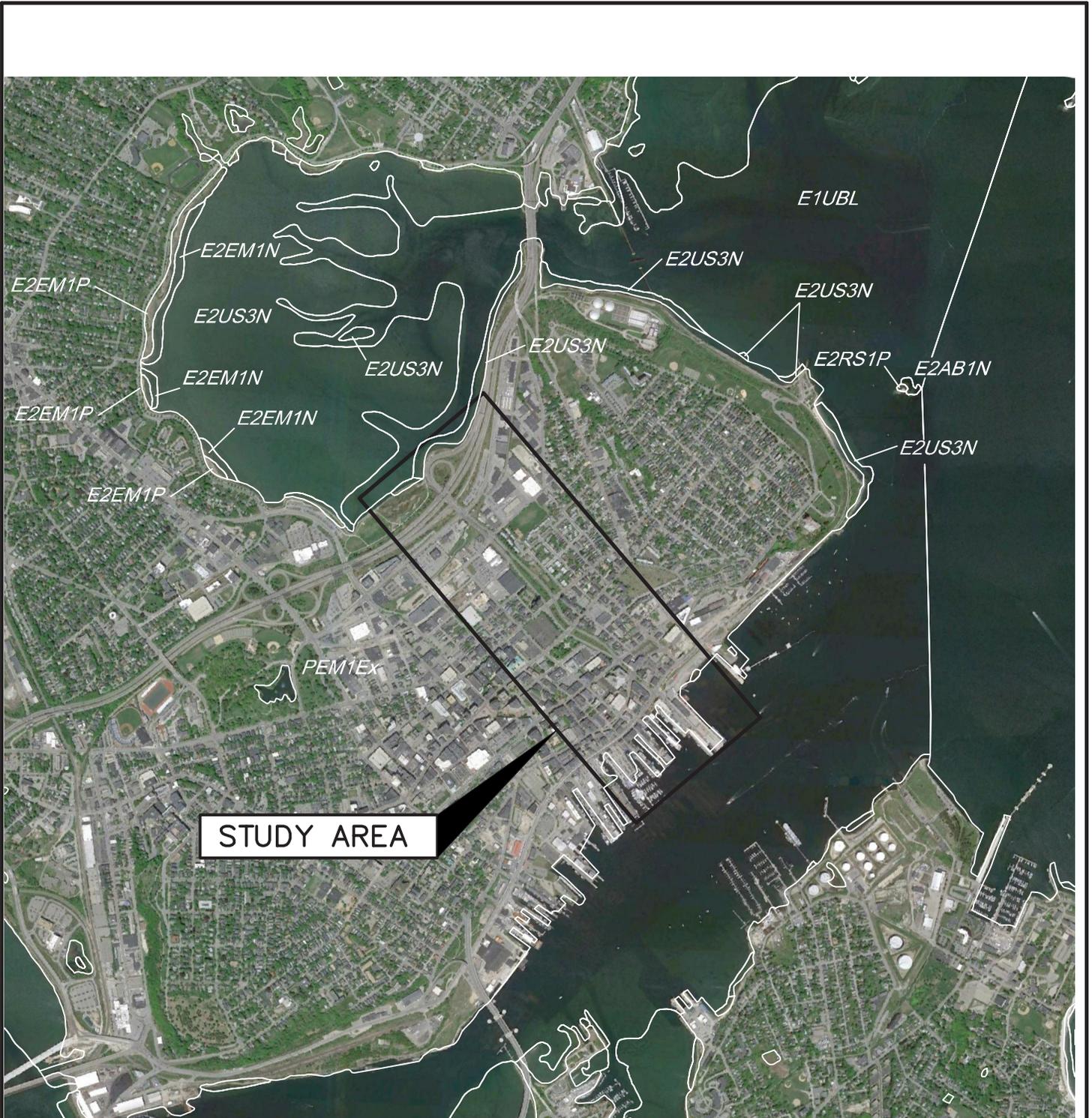


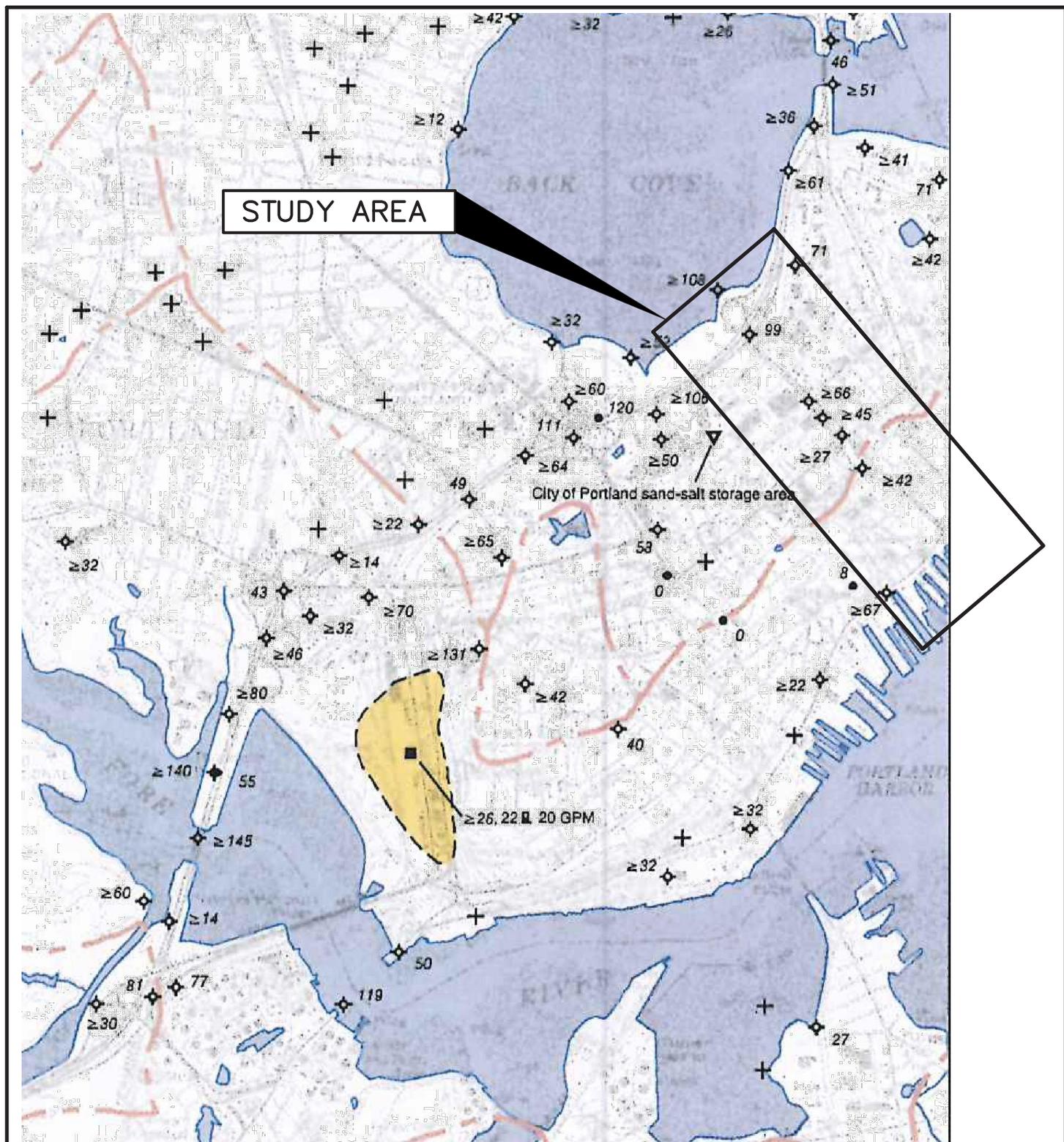
Exhibit 5.24 Bedrock Geology



NOTES:

- 1. No NWI wetlands in the study area.

Exhibit 5.25 NWI wetlands



NOTES:

1. No significant sand and aquifers located in the study area.

Exhibit 5.26 Sand and Aquifer



NOTES:

1. No habitat for inland wading waterfowl and shoreland feeding and roosting birds in the study area.

Exhibit 5.27 NRPA Bird Habitats for Inland Wading Waterfowl and Shoreland Feeding and Roosting Birds

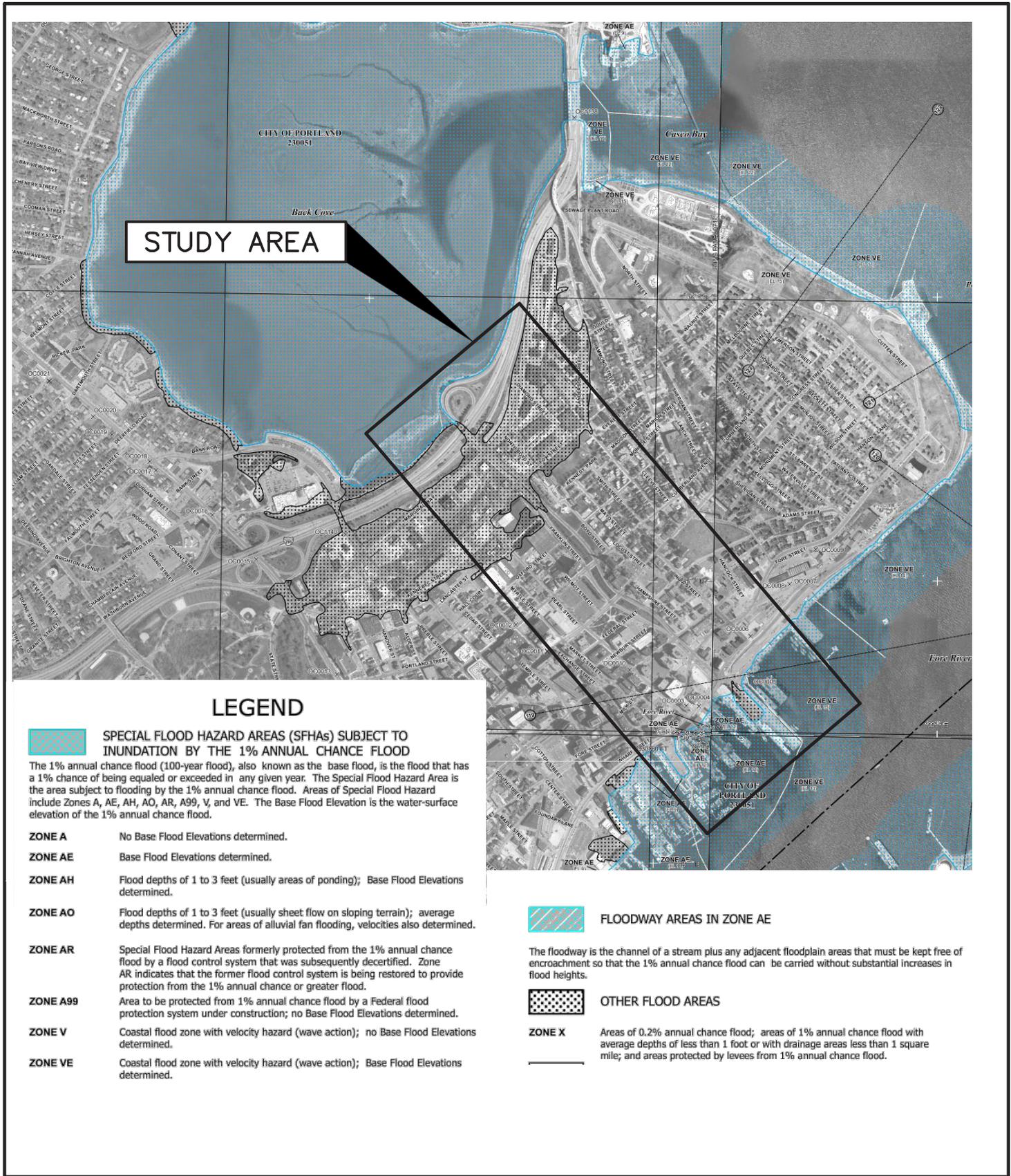


Exhibit 5.28 Flood Map



## 5.5. Traffic and Transportation Analysis

### 5.5.1. Inventory of Roadway Characteristics

**Roadway and Intersection Geometrics:** Franklin Street has a general cross section consisting of a divided roadway with two through lanes for the northbound and southbound directions with northbound (NB) toward I-295 and southbound (SB) toward Commercial Street. A typical section of the existing cross section for one bound is shown in the graphic below. Note that this is the general configuration and that some of the roadway sections have minor deviations to this typical. Each bound has no striping along the outside curbed edge of pavement and an uncurbed striped inside shoulder. The striping for individual through lanes ranges from approximately 10.3 feet to 15.4 feet in width but the overall roadway width appears to exceed 24 feet throughout. Sidewalk with and without an esplanade is present for some sections of the roadway. Turn lanes are provided at Marginal Way, Fox Street/Somerset Street, Lancaster Street, and Commercial Street intersections. The median varies in width from 5' to 132'. The median, discussed further in the streetscape analysis, is particularly wide between the Fox Street/Somerset Street and Middle Street intersections. The detailed Roadway Inventory is provided in Appendix B.

Franklin Street has eight intersections between and including Commercial Street and Marginal Way. Seven are signalized and Lancaster Street is an unsignalized intersection. At these intersections, the layout of the entering and receiving lanes appear to line up except for the Commercial Street intersection. The lanes for Franklin Street and the Maine State Pier are misaligned. These intersections are shown in plan views and panoramic views in Figure 5.42 to Figure 5.61.

At the intersections, the curbed corners have radii in the range of 35' to 85' with the exception of the Fore Street and Middle Street intersections which have smaller radii between 10' to 60'. Depending on geometrics, the larger radii tend to accommodate larger turning vehicles, however, they also create longer crosswalk lengths.

**Parking and Curb Cuts:** Metered on-street parking is provided only along the northbound right side of Franklin Street between Commercial and Fore Streets. The one curb cut on Franklin Street, providing ingress/egress from a parking lot, is located adjacent to these parking stalls.

**Bike and Pedestrian Accommodations:** The Bayside Trail crosses Franklin Street via the crosswalk at the Marginal Way intersection. There are no other bike trail connections along the corridor. Sidewalk is present along the west side of Franklin Street except for approximately 750' between Middle Street and Congress Street; sidewalk is along the eastside of Franklin Street only between Commercial Street and Cumberland Avenue. Pedestrian crossings associated with the Bayside Trail and a few other locations appear to be ADA compliant with appropriate cross slopes and widths for curb ramps and truncated domes. Crossings at all the other intersections do not appear to be ADA compliant. Sidewalks are present on all side roads. Sidewalks are either bituminous, concrete, or brick depending on the location in the Franklin Street corridor. Established pedestrian desire lines cross Franklin Street at Oxford and Federal Streets. These are clearly visible as trails across the Franklin Street median.

**Clear Zone:** The clear zone is 14' for Franklin Street. A portion of the poles for signs, utilities, traffic signals and lighting appear to be within the roadway clear zone. Mature trees appear to be growing within the clear zone on both sides of Franklin Street between Middle and Fore Streets and on the west side between Lancaster Street and Cumberland Avenue.

**Horizontal / Vertical Alignments:** Franklin Street is mostly on a horizontal tangent with some slight meandering. The horizontal curves range from approximately 400' at the Middle Street SB approach to 780' for the SB section between Cumberland Avenue and Congress Street.

The vertical grade between Lancaster and Cumberland Avenue is steep, approaching 7% for nearly 800'. Between Congress and Fore Streets, grades approach 5% for 1,100'. The other sections of the Franklin have flatter grades of less than a 2%.

**Sight Distances:** Sight distances were not evaluated for the seven signalized intersections; however, the Franklin Phase

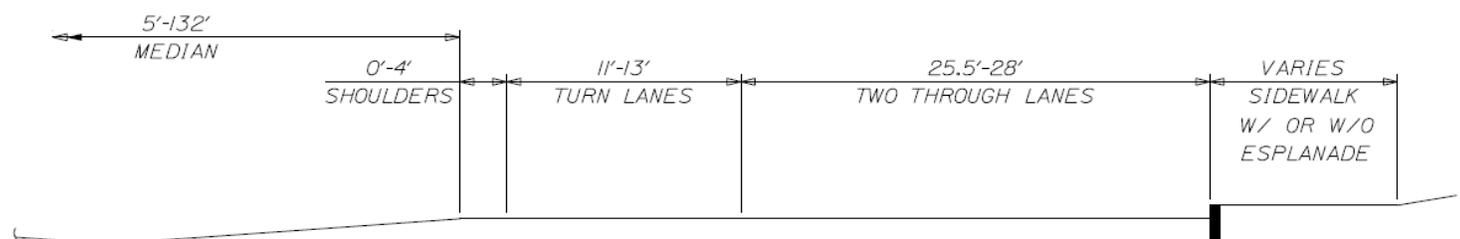


Exhibit 5.29 Typical Section - Northbound and Southbound

1 report identifies potential new unsignalized intersections at Newbury, Federal, and Oxford Streets as well as expanding Lancaster Street to allow a right turn out movement (Currently, Lancaster is a one way street running East-West. For the two potential intersections of Newbury and Federal Streets between the Congress and Middle Street intersections, sight distance for Federal Street poses the most concern in terms of sight distance. The eastbound approach for Federal Street has limited sight distance looking beyond the Congress Street due to the vertical grade. For Oxford Street, sight distance could also be problematic due to the vertical grade of approximately 7%. For the additional right turn onto Franklin Street from Lancaster Street, sight distance appears to be adequate.

**Signage:** All signs were not inventoried but a broad review of existing signage was performed. Directional and Route signs along Franklin Street do not appear to be compliant with the 2009 edition of the Maine Uniform Traffic Code (MUTCD). Route signs are located for the northbound traffic approaching Congress Street and Marginal Way intersections. Wayfinding signs are located for the southbound traffic approaching the Fox Street / Somerset Street, Congress Street, Middle Street and Commercial Street intersections. These are discussed further in a wayfinding section.

**Striping:** Existing pavement striping, including cross walk striping, appears to be worn. A recent overlay and striping is evident on the NB side of Franklin between Cumberland Avenue and Congress Street. Arrow pavement markings do not appear for many intersections.

#### DESIGN STANDARDS

Franklin Street is designated as Route 1A and has a Federal Function Classification as a minor urban arterial. The roadway is a Corridor Priority 2 roadway according to Maine DOT and is part of the National Highway System (NHS).

Design standards for Franklin Street were developed assuming a design speed of 35mph, which is equal to the posted speed. As a Corridor Priority 2 roadway, lane widths should be 11' to 12' with 4' to 10' shoulders. The width of through and turn lanes for Franklin Street does not appear to be consistent with widths almost as little as 10' or as great as 15'. Both the outside and inside shoulders are non-compliant with regard to width. There is no striping along the outside shoulder and the inside shoulder appears to be less than 4'.

To be ADA compliant, sidewalks must be a minimum of 5' in width, excluding the width of a. The existing Franklin Street sidewalk width varies and some sections appear to be less than 5 feet in width. The sidewalk material also varies along the corridor, with various sections constructed

of brick, concrete, and/or bituminous. According to the City of Portland's 2010 Technical Manual, sidewalk replaced on Franklin between Commercial and Fore Streets should be clay brick with clay brick apron and sidewalk replaced between Fore Street and Marginal Way should be brick with asphalt apron. The Technical Manual also requires an 8' esplanade for an arterial roadway. Franklin Street has an esplanade for several of the sidewalk sections but only the west side segment between Somerset and Lancaster Streets and portion of the section between Cumberland and Congress include an esplanade with a width equal to or greater than 8'.

According to AASHTO's Guide for the Development of Bicycle Facilities, a roadway shoulder that can adequately accommodate bicyclists must have a minimum 5' in width when there is no on-street parking. That width can be reduced to 4' if there is no curb, guardrail, etc. For a vehicle to safely share a lane with a bike, the lane should be a minimum 14' in width. If bikes and pedestrians are to share an off-street multi use pathway, that pathway should be a minimum of 10' wide. As discussed above, Franklin Street currently has inadequate shoulder width, instances of inadequate lane width and no designated bicycle infrastructure such as bike lanes or multi-use pathways. Thus, the street is not compliant with current bike standards.

Other elements for design standards are:

- Stopping sight distance for Franklin Street ranges from 250' for a level grade to 277' for a 7% vertical grade. For the existing intersections, stopping sight distance is not an issue since they are signalized and Lancaster is limited to a right turn movement only from Franklin St.
- Minimum allowable vertical grade is 0.5%; Maximum vertical grade is 6% for level and 7% for rolling terrain. Franklin Street's approximate 7% vertical grade is at the threshold of maximum allowable grade for rolling terrain. Ground survey is necessary to verify that 7% is not exceeded at any point along the corridor.
- Minimum allowable horizontal radius is 395'. The sharpest horizontal curve for Franklin Street is located on the SB approach to the Middle Street intersection. The radius is estimated at 400' and appears to be compliant; however, ground survey would better determine the existing radius.
- The clear zone is 14' and as noted above, poles and trees do appear to be within the clear zone.
- Sideslopes not needing protection should be 3:1 or less. Franklin Street does not appear to have any slopes that need protection.

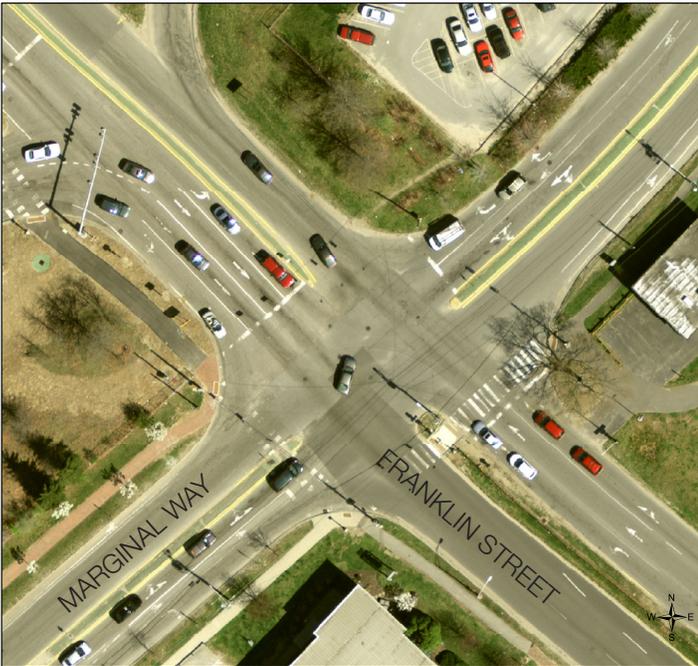


Figure 5.42. Marginal Way Intersection



Figure 5.43. Somerset/Fox Street Intersection



Figure 5.44. Marginal Way Intersection



Figure 5.45. Somerset Street Intersection



Figure 5.49. Lancaster Street Intersection

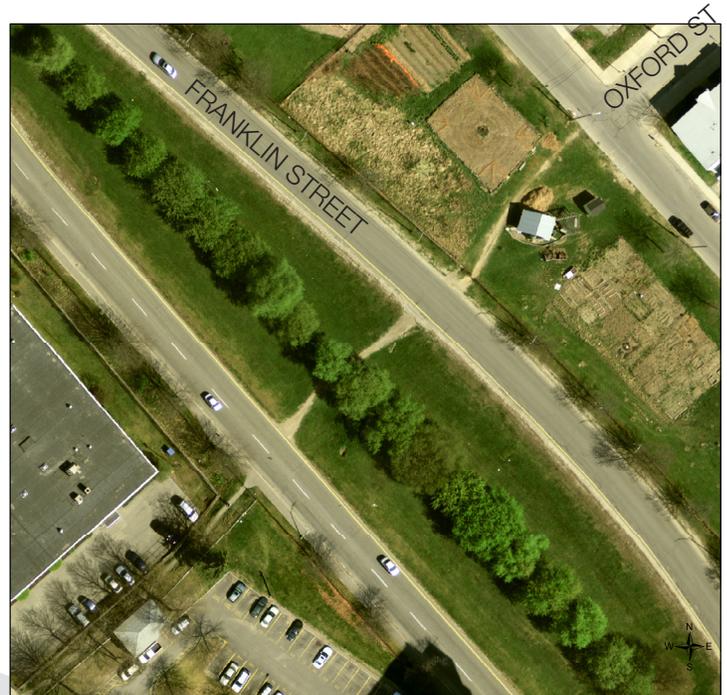


Figure 5.48. Oxford Street Pedestrian paths



Figure 5.47. Lancaster Street Intersection



Figure 5.46. Oxford Street Pedestrian Paths



Figure 5.53. Cumberland Avenue Intersection



Figure 5.52. Congress Street Intersection



Figure 5.51. Cumberland Avenue Intersection



Figure 5.50. Congress Street Intersection



Figure 5.57. Federal Street Connection



Figure 5.56. Middle Street Intersection



Figure 5.55. Federal Street Intersection



Figure 5.54. Middle Street Intersection



Figure 5.61. Fore Street Intersection



Figure 5.60. Commercial Street Intersection



Figure 5.59. Fore Street Intersection



Figure 5.58. Commercial Street Intersection

5.5.2. Traffic Volumes and ATR counts

The project team obtained the most recent traffic data from MaineDOT, collected in April of 2011. We analyzed daily variations in traffic volumes between the hours of 6am and 6pm both cumulatively and according to vehicle type. Over the course of the day, car counts peak in the AM between the hours of 7:30-8:30am and in the PM between 4:30 and 5:30pm. Small and large truck traffic peaks between the hours of 9:00 and 10:00am. The Annual Average Daily Traffic (AADT) is the total volume of vehicle traffic on a roadway over the course of a year, not including bicycles. This number is calculated from the measure of daily traffic over a short period, then adjusted using a growth factor in order to eliminate seasonal and day of week biases. In the case of Franklin Street, the following table lists the AADT of select locations along the corridor. Exhibit 5.30 illustrates the AADT for the entire corridor. The raw and adjusted counts that the AADT is based on is included in Appendix C.

Table 5.1 AADT of Select locations

Street Segment	Southbound (I-295 to Commercial)	Northbound (Commercial to I-295)
Between I-295 and Marginal Way	13,990	13,870
Between Cumberland Avenue and Congress Street	8,000	8,770
Between Middle Street and Fore Street	3,830	3,820

Cars and Trucks: As illustrated in Exhibit 5.30, the volume of traffic moving in either direction decreases exponentially going south towards Commercial Street from I-295. The majority of traffic along the corridor is comprised of single-occupancy vehicles (SOV). Trucks are present to a lesser degree.

Exhibit 5.31 and Exhibit 5.32 illustrate daily variations according to vehicle type between the intersections of Marginal Way and Somerset Street. Based on land uses in the vicinity, such as Whole Foods Supermarket, the Hood Dairy filling station on Fox Street and the scrap yards on Somerset Street, this segment of Franklin Street serves

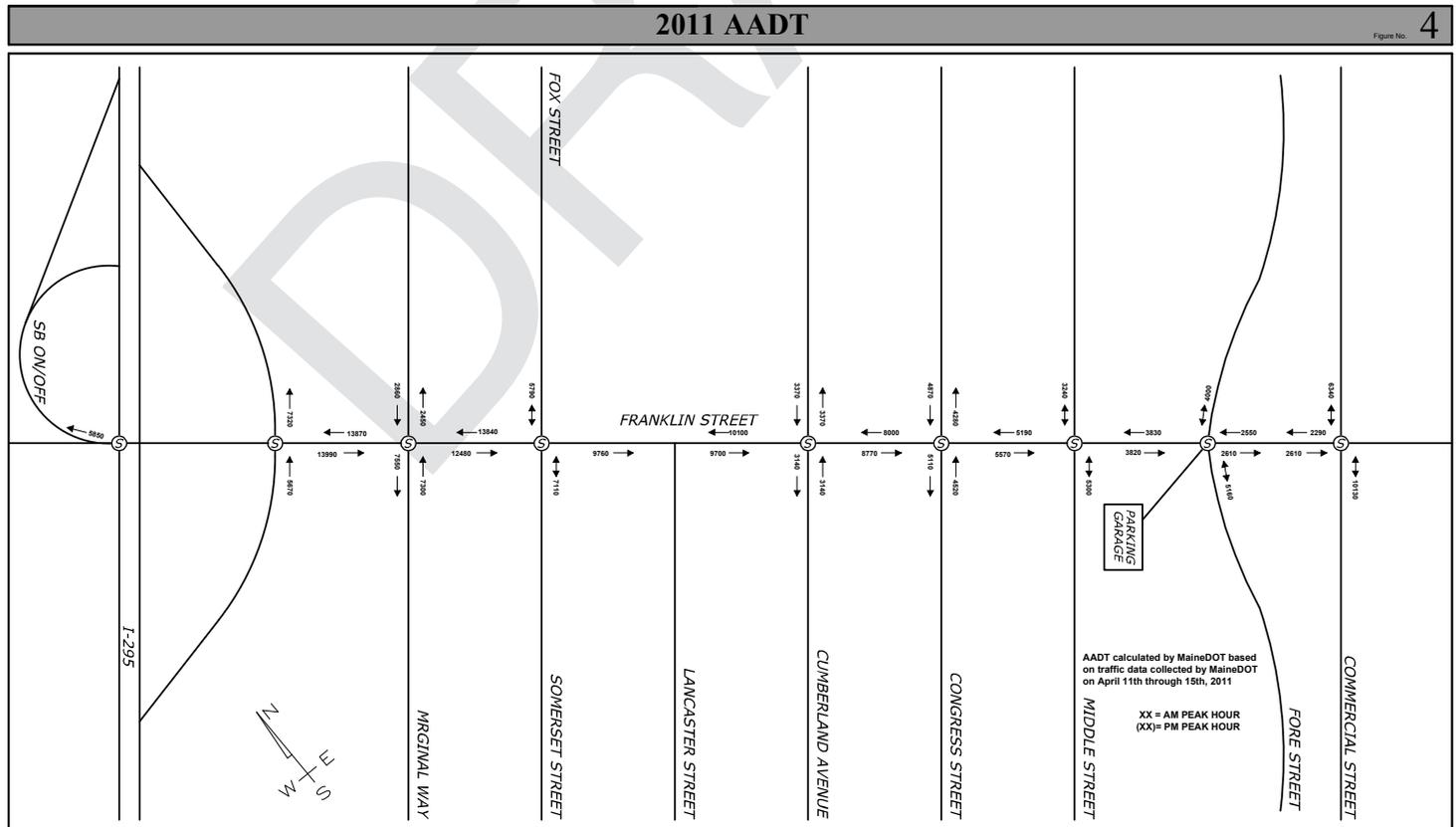


Exhibit 5.30 Annual Average Daily Traffic along the corridor (larger graphic included in Appendix C)

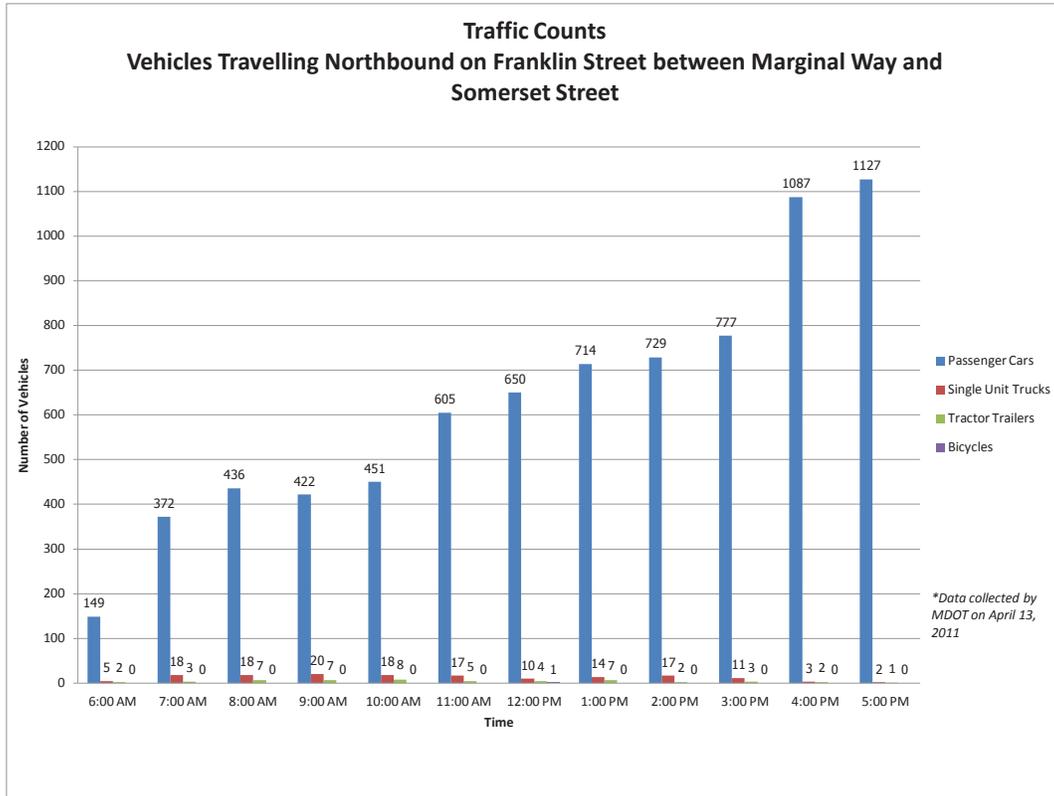


Exhibit 5.31 Traffic Counts between Somerset Street and Marginal Way

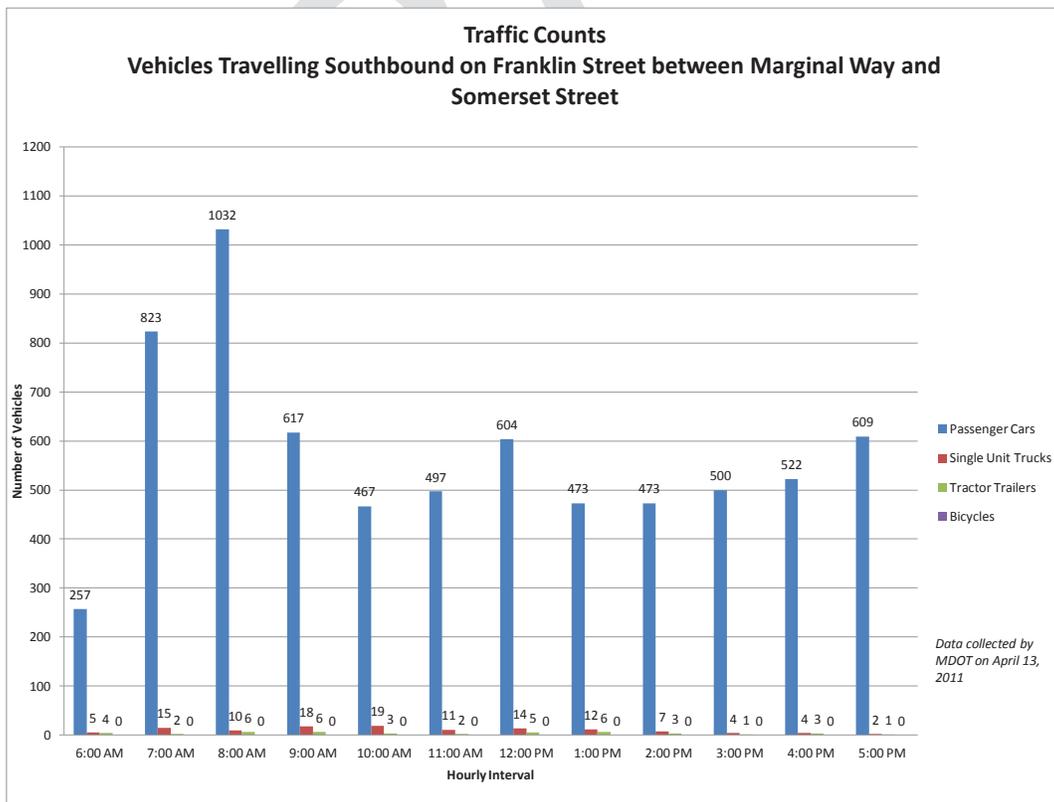


Exhibit 5.32 Traffic Counts between Marginal Way and Somerset Street

a higher volume of trucks relative to other portions of the corridor. As noted, however, the overall volume of trucks, even in these peak locations, is significantly lower than that of SOV's.

### 5.5.3. Crashes

The project team obtained crash data from MaineDOT for the period of 2010-2012, which is the most recent period available.

In order to evaluate whether a location has a crash problem, MaineDOT uses two criteria to define a High Crash Location (HCL). Both criteria must be met in order to be classified as an HCL.

1. A critical rate factor of 1.00 or more for a three-year period. (A Critical Rate Factor (CRF) compares the actual crash rate at a given location to the rate for similar intersections in the state. A CRF of less than 1.00 indicates a rate of less than average) and:
2. A minimum of eight (8) crashes over a three-year period.

There were a total of 171 collisions during the three year period of 2010-2012 along the Franklin Street corridor from (and including) Marginal Way through Commercial Street. The majority of these collisions (159) occurred at intersections with the remaining 12 collisions occurring at locations between intersections. One of the collisions involved a pedestrian and three involved a bicyclist. A copy of the collision summary is provided in Appendix D.

There was one high crash location reported at the intersection of Franklin Street and Marginal Way. A copy of each individual collision report was obtained for this intersection and used to create a collision diagram, which is a composite of the individual collision reports. The purpose of developing a collision diagram is to review the collisions and determine if there is a discernible pattern that can be corrected. The collision diagram in Exhibit 5.33 shows a clear pattern of rear end collisions, occurring primarily on the eastbound Marginal Way approach and on the southbound Franklin Street approach. A secondary pattern of angular collisions also exists for these same approaches.

### 5.5.4. Operational Analysis and Level of Service

Two approaches are taken in this section to identifying Level of Service (LOS). The more traditional methodology is a highway LOS, focusing on the experience of motorized vehicle users. The concept of LOS has also recently been extended to both public transit and non-motorized transportation. This multimodal LOS (MMLoS) incorporates the operational quality of these modes as well as highway traffic.

LOS measures are only one way of measuring existing conditions and should be viewed in the context of the other detailed analysis in this document. Using LOS measures

alone can result in missing many other nuances of the existing conditions for all modes.

### Definition of Vehicular LOS

Highway Level of Service (usually called 'Level of Service' for short and abbreviated LOS) is an indicator of the quality of highway travel established decades ago in the Highway Capacity Manual (HCM). Over time, it has been developed and refined for different types of road segments and intersections. LOS is described using the letters A through F, and is intended to relate to the degree of satisfaction drivers experience under prevailing traffic conditions. The letter grade "A" represents the "best" quality of service, and letter grade "F" represents the "worst" quality of service. However, level of service results must be evaluated in the context of other planning and design considerations. Level of service "F", by itself, does NOT mean that there is a problem that the agency must fix. Similarly, level of service "A", by itself, does NOT mean that there are no problems. It is not necessarily desirable to aim to achieve the highest LOS.

The following descriptions of highway LOS are generally applicable:

- A. Negligible delays from interaction with other traffic. On multilane roads, maneuverability between lanes is rarely restricted. At intersections, control delays (i.e. time lost to obey a STOP sign or a traffic signal) are rarely added to by queuing for other traffic traveling with the vehicle in question.
- B. Noticeable but small delays from interaction with other traffic. Maneuverability will be restricted more often than at level A, and delays at intersections will include some incremental delay (over and above the control delay that would be expected in the absence of other traffic).
- C. Modest delays from interaction with other traffic. Significantly more restricted maneuverability and incremental delay.
- D. Significant and noticeable decrease in speed and (where applicable) maneuverability. Significant incremental delay at intersections, and conditions approaching unstable flow between intersections. As the 'letter grade' suggests, this has often been considered a benchmark for unsatisfactory operation.
- E. Unstable flow with highly variable speeds. Maneuverability sharply restricted (where applicable), with high levels of incremental delay at intersections from queuing. This level has historically been associated with the notion of capacity, i.e. the conditions under which the maximum vehicle throughput can be attained, albeit under undesirable conditions,
- F. Forced or breakdown flow, with traffic jam conditions and unpredictable speeds. Once the breakdown in flow occurs, the vehicle throughput may actually be less than under LOS E.



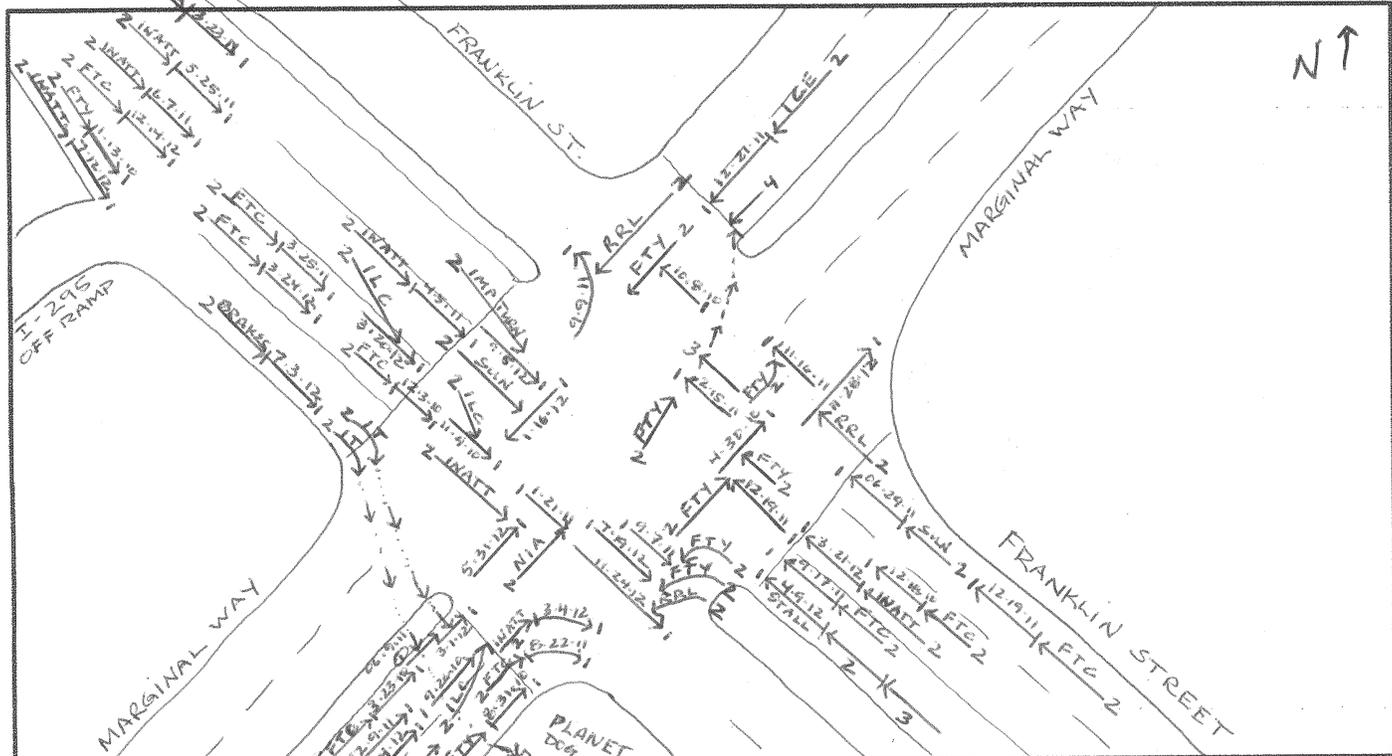
# COLLISION DIAGRAM

SHEET 1 OF 3

LOCATION Franklin Street / Marginal Way

TOWN Portland, Maine NODE NO(S) 19000

YEARS REVIEWED 2010 - 2012 DATE PREPARED 07-29-2013



CRITICAL RATE FACTOR \_\_\_\_\_ EQUIV. PROP. DAMAGE ACC/YEAR \_\_\_\_\_ ACC/MEV \_\_\_\_\_

- LIGHT**
1. DAWN (MORNING)
  2. DAY (DAY)
  3. DUSK (EVENING)
  4. DARK (ST. LIGHTS ON)
  5. DARK (NO ST. LIGHTS)
  6. DARK (ST. LIGHTS OFF)
  7. OTHER
- ROAD SURFACE**
1. DRY
  2. WET
  3. SNOW/SLUSH-SANDED
  4. ICE/PACKED SNOW-SANDED
  5. MUDDY
  6. DEBRIS
  7. OILY
  8. SNOW/SLUSH-NOT SANDED
  9. ICE-PKD. SNOW-NOT SANDED
  10. OTHER
- APPARENT CONTRIBUTING FACTORS - HUMAN**
1. NO IMPROPER ACTION
  2. FAIL TO YLD. RIGHT OF WAY
  3. ILLEGAL UNSAFE SPEED
  4. FOLLOW TOO CLOSE
  5. DISREGARD TRAFFIC CONTROL DEVICE
  6. DRIVING LEFT OF CENTER-NO PASSING
  7. IMPROPER PASS-OVERTAKING
  8. IMP. UNSAFE LANE CHANGE
  9. IMP. PARKING START/STOP
  10. IMPROPER TURN
  11. UNSAFE BACKING
  12. NO SIGNAL OR IMP. SIGNAL
  13. IMPEDING TRAFFIC
  14. DRIVER INATTENTION-DISTRACTION
  15. DRIVER INEXPERIENCE
  16. PEDEST. VIOLATION ERROR
  17. PHYSICAL IMPAIRMENT
  18. VISION OBSCURED-WINDSHIELD GLASS
  19. VISION OBSCURED-SUN/HEADLIGHTS
  20. OTHER VISION OBSCUREMENT
  30. OTHER HUMAN VIOLATION FACTOR
  31. HIT AND RUN
  51. UNKNOWN
- VEHICULAR**
41. DEFECTIVE BRAKES
  42. DEFECTIVE TIRE/FAILURE
  43. DEFECTIVE LIGHTS
  44. DEFECTIVE SUSPENSION
  45. DEFECTIVE STEERING
  50. OTHER VEHICLE DEFECT OR FACTOR
  51. UNKNOWN

**SYMBOLS**

ANGLE		PEDESTRIAN		FATAL ACCIDENT	
BACKING		REAR END		VEHICLE (MOVING)	
FIXED OBJECT		SIDE SWIPE		BICYCLE	
HEAD ON		TURNING MOVE		ANIMAL	
OVERTURN		CHANGE LANE		SLED	
PARKED VEHICLE		OUT OF CONTROL			

**WEATHER**

C = CLEAR	F = FOG	R = RAIN
SL = SLEET	S = SNOW	CL = CLOUDY
		XW = CROSS WINDS

**INJURIES**

K = FATAL	B = NON-INCAPACITATING
A = INCAPACITATING	C = POSSIBLE INJURY

Exhibit 5.33 Collision Diagram

For different highway situations or locations, the boundaries between the levels of service are defined in terms of one or more quantities. For this project, attention will be focused on both individual study area intersections and on the quality of travel along Franklin Avenue in the AM and PM weekday peak periods. For intersections, LOS is defined in terms of the average vehicle control delay, or the amount of delay compared to ideal conditions. For operation along arterial roads, it is defined in terms of average travel speed.

### Operational Analysis

The project team completed a Synchro / Simtraffic computer model of the eight signalized intersections along Franklin Street for the existing 2013 AM and PM peak hour conditions. The reports from the Synchro analysis are included in Appendix E. The intersections are listed as follows from south to north:

- Commercial Street
- Fore Street
- Middle Street
- Congress Street (Comprised of two intersections that function as one)
- Cumberland Avenue (Comprised of two intersections that function as one)
- Somerset Street / Fox Street
- Marginal Way
- I-295 Ramps

The AM and PM peak hour volumes used for the modeling were based on 2011 counts collected by the MaineDOT and balanced with a recent count (7/25/2013) collected at Franklin Street / Marginal Way. (Exhibit 5.30)

Based on conversations with City Staff, the three intersections on the northerly end of Franklin Street (I-295 Ramps, Marginal Way, and Somerset Street / Fox Street) are interconnected and were modeled as actuated-coordinated. In addition, the three intersections on the southerly end of Franklin Street (Middle Street, Fore Street, and Commercial Street) are also interconnected. These three intersections were modeled as actuated-uncoordinated with the same background cycle length. City Staff were unsure if any of the signalized intersections along this corridor were functioning as coordinated. The two intersections (northbound and southbound) on Cumberland Avenue were treated as a single intersection from an operational perspective. The

same methodology was used for the two intersections with Congress Street.

The phasing of the intersections used for the modeling is based on field reviews and the timing was optimized using the computer software. Cycle lengths vary from 60 seconds (AM & PM) used for the intersections at the Commercial Street end to 80 (AM) and 110 (PM) seconds used for the Marginal Way end.

Based on the modeling of the 2013 existing conditions (AM and PM peak hours), the level of service (LOS) for the intersections varies from A-B toward the Commercial Street end and decreases to failing (LOS E and F) at the Marginal Way end. This decrease in LOS is proportional to the trend in traffic volumes, since the Marginal Way end has approximately three to four times the volume of traffic of the Commercial Street end.

Based on the modeling, the intersections from approximately Cumberland Avenue to Commercial Street are operating at acceptable levels of service (LOS A-C) with no clear operational issues. The three intersections with Franklin Street and; Somerset / Fox Streets, Marginal Way, and the I-295 ramps are all over capacity during both the AM and PM peak hours, leading to queue lengths that interfere with proper functioning of the surrounding intersections (Exhibit 5.34).

### MULTIMODAL LOS

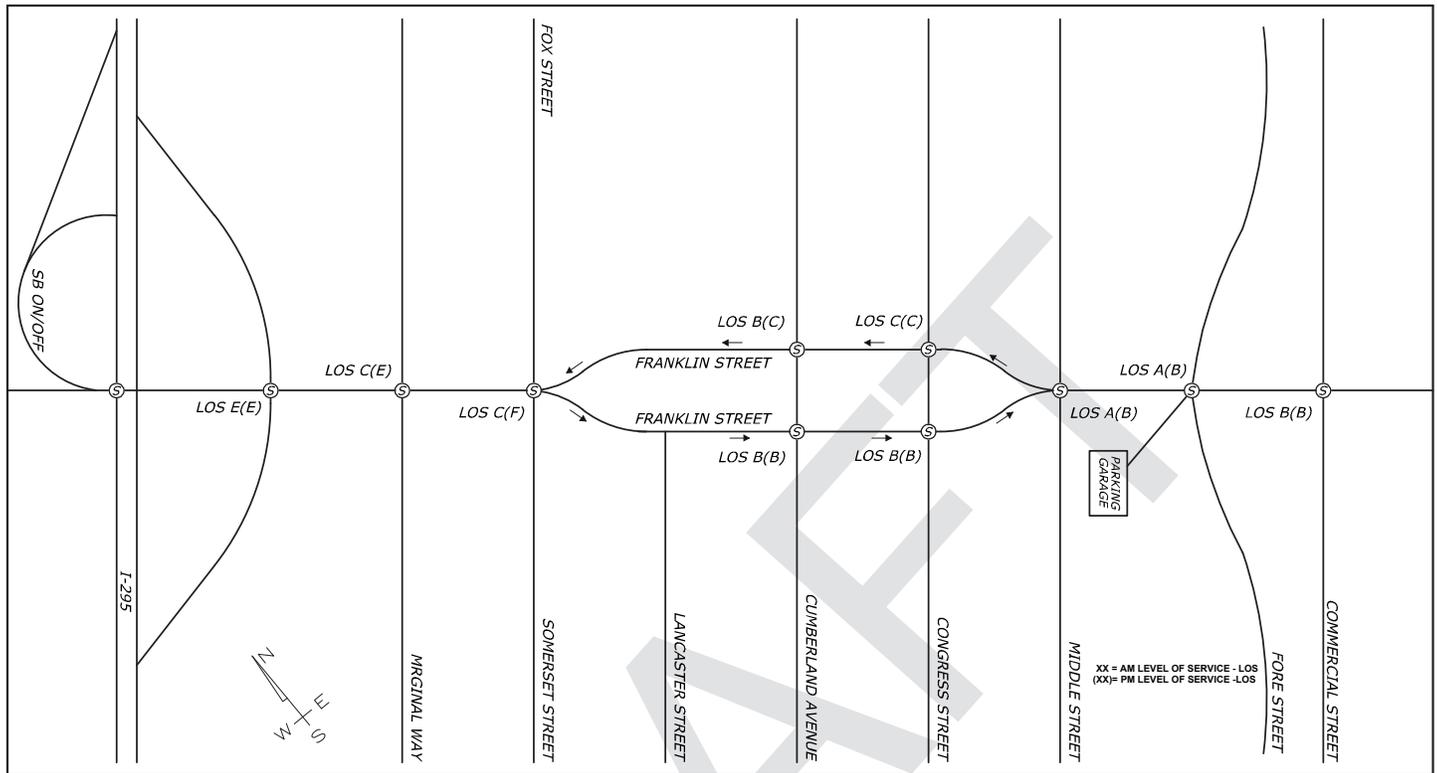
#### Methodology

The methodology for this analysis follows the guidelines presented in NCHRP Report 616 Multimodal Level of Service Analysis for Urban Streets and utilizes the CompleteStreets software released by Dowling Associates, Inc.

The multimodal level of service analysis framework translates complex numerical performance results into a simple letter grade system representative of the travelers' perception of the resulting quality of service provided by the facility. The letter grade "A" represents the "best" quality of service, and letter grade "F" represents the "worst" quality of service. However, level of service results must be evaluated in the context of other planning and design considerations. Level of service "F", by itself, does NOT mean that there is a problem that the agency must fix. Similarly, level of service "A", by itself, does NOT mean that there are no problems. Table 5.2 illustrates the thresholds for each letter grade set forth by the multimodal methodology.

# 2013 EXISTING CONDITIONS INTERSECTION LEVEL OF SERVICE - LOS

Figure No. 5



FRANKLIN STREET, PORTLAND, MAINE

Design: MC Scale: NONE  
 Draft: LN Date: SEPT. 2013  
 Checked: TG File Name: 2735-Traff.dwg

**GP** Gorrill-Palmer Consulting Engineers, Inc.  
 Traffic and Civil Engineering Services  
 PO Box 1237 207-657-6910  
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 Gray, ME 04039 mail@gorrillpalmer.com  
 www.gorrillpalmer.com

Exhibit 5.34 Intersection Level of Service (also included in Appendix E)

Table 5.2 LOS Letter Grade Numerical Equivalents

LOS Model Outputs	LOS Letter Grade
Model <= 2.00	A
2.00 < Model <= 2.75	B
2.75 < Model <= 3.50	C
3.50 < Model <= 4.25	D
4.25 < Model <= 5.00	E
Model > 5.00	F

Source: NCHRP Report 616, Transportation Research Board

Notes:

1. If any directional segment hourly volume/capacity ratio (v/c) exceeds 1.00 for any mode, that direction of street is considered to be operating at LOS F for that mode of travel for its entire length (regardless of the computed level of service).
2. If the movement of any mode is legally prohibited for a given direction of travel on the street, then the level of service for that mode is LOS "F" for that direction.

The multimodal LOS methodology provides for the estimation of separate mean level of service for each of four modes of travel on the urban street: auto driver, bus passenger, bicyclist and pedestrian. The methodology does not provide for the computation of an overall weighted average of the LOS results

across the four modes of travel. It enables the analyst to see the changes in LOS from one mode to the other as changes are made to the design and operation of the urban street. Weighing the trade-offs of improving the LOS for one mode versus worsening it for another mode are left to the analyst and the public agency operating the urban street.

**Auto Level of Service:** The auto level of service is a function of the average travel speed over the length of the street and the average number of stops per mile. *Note that the methodology used to compute the auto level of service rating for the Multimodal LOS analysis (NCHRP 3-70) is not the same as the HCM approach described above, and the results may not be the same.* The NCHRP 3-70 auto level of service is based on the stops per mile, which was found in that research project to be a good predictor of how the general public would rate the quality of service for the street. Stops and speed are generally closely correlated.

**Transit Level of Service:** The transit level of service is based on a combination of the access experience, the waiting experience, and the ride experience. The access experience is represented by the pedestrian LOS score for pedestrian access to bus stops in the direction of travel along the street. Therefore, an improved pedestrian LOS could result

in an improved transit LOS as well. The waiting experience is a function of the headway between buses and wait time associated with on-time transit performance.

Portions of the street where there is no transit service should be split into their own segments for the purpose of transit LOS analysis. The transit LOS should be set at "F" for these segments. The rest of the transit LOS analysis proceeds normally, with the overall transit LOS being a length-weighted average including the segments with no transit service.

**Bicycle Level of Service:** The bicycle level of service is a weighted combination of the bicyclists' experience at intersections and on-street segments in between the intersections. The most significant factors affecting bicycle LOS on an urban street are the presence of a striped (Class II) bicycle lane and the number of signalized intersections per mile that the bicyclist must cross. Other factors include the number of unsignalized intersections and commercial driveways that the bicyclist must cross, and the volume and speed of auto traffic in the direction of travel.

**Pedestrian Level of Service:** The pedestrian level of service for an urban street is calculated based on pedestrian density, and a separate calculation is also made based on widths of bicycle lanes, parking lanes, buffers and sidewalk, among other factors. The final level of service for the facility is the worse of the two computed levels of service.

For pedestrians, the most significant factor affecting their LOS is usually the volume of auto traffic (AADT) and the traffic speed. Other factors that affect perceived quality of service include the presence of barriers between vehicular traffic and pedestrians in the form of wide outside lanes, on-street parking lanes, buffers and trees or fences.

### Data Collection

The data collection effort consisted of field observations, traffic counts, and information obtained from the City of Portland, MaineDOT, and the consultant team.

Field observations were conducted in May 2013 to observe existing conditions and verify information obtained from online sources. Other sources include the same traffic counts used for the motorized vehicular operational analysis in this study and transit information summarized in the relevant section of this report. Gorrill-Palmer Consulting Engineers, Inc. provided an updated Synchro model for the study area. Key data inputs include the following:

**Layout and Cross Section:** Information related to layout and cross sections was obtained from the field observations. This information included:

- Crosswalk Widths
- Segment Lengths
- Number of Lanes

- Speed Limits
- Number of Bus Stops on Each Segment
- Presence of Right Turn Islands
- Median Type
- Number of Large Barrier Objects
- Cross Sectional Widths
- Number of left/right access points along the segment
- Bus Stop Amenities
- Pavement Conditions
- Presence of Left Turn Pockets
- On-Street Parking
- Number of Trees

**Traffic and Signal Information:** The traffic counts and signal timing information were used to determine the following factors:

- g/C Ratio - the ratio of green time to total cycle length for each through movement
- Walk Phase Timing
- Peak Hour Factor (PHF)
- "K" Factor - the ratio of peak hour volume to total daily volume
- Traffic Signal Cycle Length
- Signal System Coordination (yes or no)
- Peak Hour 2-Way Volumes
- Directional Volume Distribution

**Transit:** Transit information was gathered from the Internet and the City of Portland, PACTS, and METRO.

Other Information: Additional information required for the multimodal LOS analysis was obtained using standard defaults provided by the NCHRP Report 616 Multimodal Level of Service Analysis for Urban Streets and engineering judgment, including signal timing information and Average Daily Traffic (ADT) volumes for certain segments.

### Results

Table 5.3 summarizes the Multimodal LOS results for the AM and PM peak period for each segment in the northbound direction. Table 5.4 summarizes the Multimodal LOS results for the AM and PM peak period for each segment in the southbound direction.



Table 5.3 Peak Hour Level of Service Results – Northbound

Segment	Mode	AM Peak		PM Peak	
		Score	LOS	Score	LOS
Commercial Street to Fore Street	Auto	0.71	B	0.71	B
	Transit	6.38	F	6.39	F
	Bicycle	3.02	C	3.02	C
	Pedestrian	2.55	B	2.58	B
Fore Street to Middle Street	Auto	0.71	B	0.71	B
	Transit	6.41	F	6.41	F
	Bicycle	3.66	D	3.66	D
	Pedestrian	2.72	B	2.74	B
Middle Street to Congress Street	Auto	0.76	B	0.76	B
	Transit	6.50	F	6.50	F
	Bicycle	3.53	D	3.53	D
	Pedestrian	3.30	C	3.33	C
Congress Street to Cumberland Avenue	Auto	0.71	B	0.71	B
	Transit	6.45	F	6.46	F
	Bicycle	3.78	D	3.78	D
	Pedestrian	3.02	C	3.05	C
Cumberland Avenue to Lancaster Street	Auto	0.76	B	0.76	B
	Transit	6.52	F	6.52	F
	Bicycle	3.76	D	3.76	D
	Pedestrian	3.45	C	3.45	C
Lancaster Street to Fox Street/ Somerset Street	Auto	0.71	B	0.71	B
	Transit	6.51	F	6.52	F
	Bicycle	4.44	E	4.44	E
	Pedestrian	3.42	C	3.44	C
Fox Street/ Somerset Street to Marginal Way	Auto	0.71	B	0.71	B
	Transit	6.49	F	6.49	F
	Bicycle	4.65	E	4.65	E
	Pedestrian	3.30	C	3.44	C

Table 5.4 Peak Hour Level of Service Results – Southbound

Segment	Mode	AM Peak		PM Peak	
		Score	LOS	Score	LOS
Marginal Way to Fox Street/ Somerset Street	Auto	0.71	B	0.71	B
	Transit	6.46	F	6.46	F
	Bicycle	3.99	D	3.99	D
	Pedestrian	3.06	C	3.08	C
Fox Street/ Somerset Street to Lancaster Street	Auto	0.71	B	0.71	B
	Transit	6.41	F	6.41	F
	Bicycle	3.87	D	3.87	D
	Pedestrian	2.70	B	2.7	B
Lancaster Street to Cumberland Avenue	Auto	0.76	B	0.76	B
	Transit	6.47	F	6.47	F
	Bicycle	3.64	D	3.64	D
	Pedestrian	3.11	C	3.13	C
Cumberland Avenue to Congress Street	Auto	0.71	B	0.71	B
	Transit	6.45	F	6.45	F
	Bicycle	3.32	C	3.32	C
	Pedestrian	2.97	C	2.98	C
Congress Street to Middle Street	Auto	0.76	B	0.76	B
	Transit	6.50	F	6.5	F
	Bicycle	3.71	D	3.71	D
	Pedestrian	3.31	C	3.33	C
Middle Street to Fore Street	Auto	0.71	B	0.71	B
	Transit	6.42	F	6.42	F
	Bicycle	3.77	D	3.77	D
	Pedestrian	2.81	C	2.83	C
Fore Street to Commercial Street	Auto	0.71	B	0.71	B
	Transit	6.43	F	6.43	F
	Bicycle	3.77	D	3.77	D
	Pedestrian	2.86	C	2.87	C

A summary of the overall corridor Multimodal LOS results for Franklin Street is provided in Table 5.5.

Table 5.5 AM and PM Peak Overall Facility Score

Franklin Street – Overall Corridor					
	Mode	AM Peak		PM Peak	
		Score	LOS	Score	LOS
Northbound	Auto	0.73	B	0.73	B
	Transit	6.48	F	6.47	F
	Bicycle	3.81	D	3.81	D
	Pedestrian	3.18	C	3.15	C
Southbound	Auto	0.73	B	0.73	B
	Transit	6.45	F	6.46	F
	Bicycle	3.72	D	3.72	D
	Pedestrian	3.03	C	3.04	C

### Conclusions of MMLOS Analysis

The results of the Multimodal LOS for Franklin Street are generally consistent in both the northbound and southbound direction and both peak periods.

Auto LOS is a function of the average travel speed over the length of the street and the average number of stops per mile. The overall corridor Auto LOS is “B” during the AM and PM peak periods and in both analysis directions. Again, this is a different way of measuring automobile LOS than the HCM method.

There are currently no transit stops along Franklin Street, resulting in a Transit LOS of “F.” The transit level of service is based on a combination of the access experience, the waiting experience, and the rider experience, as well as the pedestrian LOS score.

The overall corridor Bicycle LOS for Franklin Street is LOS “D.” Bicycle LOS is based on a combination of user experience at intersections, the presence of striped bicycle lanes, and the number of signalized intersections per mile that the bicyclists must cross. The resulting LOS is due to the lack of striped bicycle lanes along Franklin Street. However, due to limited driveways and intersections along the corridor, combined with the volume and speed of auto traffic in the direction of travel, bicyclists can still travel along the corridor.

The overall corridor Pedestrian LOS for Franklin Street is LOS “C.” Pedestrian LOS is a combination of pedestrian density and widths of bicycle lanes, parking lanes, buffers, and sidewalk. The most significant factor affecting Pedestrian LOS is usually the volume of auto traffic and traffic speed.

### 5.5.5. Pedestrian and Bicycle Analysis

While the pedestrian and bicycle conditions on the corridor have already been somewhat discussed in the Streetscape Analysis, this section includes a more detailed discussion focusing on these travel modes including references to multiple data sources that were either pre-existing or developed for the purposes of this study.

Data sources included GIS files from the City and other sources, as well as data published in prior reports, and were used along with field visits by the consultant team to assess pedestrian and bicycle conditions in the study area. GIS files provided information on pavement conditions, existence of crosswalks, and existence of paved and unpaved sidewalks or trails. Counts provided by MaineDOT and updated by Gorrill-Palmer Consulting Engineers, Inc. were limited in scope, only indicating one bicycle traveling on the corridor during the count period. These counts are summarized in 5.5.3 - Traffic Volumes and ATR Counts and further below.

To supplement these data and field visits conducted by the consultant team, a workshop was held with the Portland Bicycle and Pedestrian Advisory Committee at the August 12, 2013 regular meeting of the Committee. The goal of this workshop was to gather additional input on major generators/attractors for pedestrian and bicycle trips, challenges and opportunities for pedestrians and cyclists, and desire lines. Desire lines were explored both in the context of paths people travel today, as well as in the context of where connections or desired pathways are missing.

Previous studies, such as the Portland Peninsula Transit Study, also contain public feedback on bicycle and pedestrian conditions. That study, however, was completed in 2008 and the workshop with the Advisory Committee represents



Figure 5.62. Bicycle and Pedestrian Advisory Committee Workshop, August 12, 2013



an update and further exploration of issues. Challenges highlighted in the transit study such as the intersections of Congress, Cumberland, and Marginal and reconnections of streets are generally supported by the Committee's input. Additional recommendations in the transit study included covered bicycle parking at Franklin and Commercial. The Pedestrian and Bicycle chapter of the City of Portland Comprehensive Plan includes additional information on recommended policies and strategies for promoting cycling and walking in Portland.

Many of the conditions for pedestrians and cyclists have already been addressed in the streetscape analysis, as the condition of the streetscape is integral to the pedestrian and cyclist experience. The information touched on in the streetscape assessment will be expanded on in this section, tying it to feedback from the Committee as well as the existing data.



Figure 5.63. Poor Pavement Conditions on Franklin Street and Side Streets

**PEDESTRIAN FACILITIES**

Exhibit 5.39 includes information on paved and unpaved sidewalks in the study area. The findings of the Portland Peninsula Sidewalk and Ramp Inventory show that in 2009, many of the sidewalk conditions were good (see Exhibit 5.36); instead the challenge is missing sidewalks. On Franklin Street, sidewalk is present along the west side of Franklin Street except for approximately 750' between Middle Street and Congress Street. Consistent sidewalk is along the eastside of Franklin Street only between Commercial and Middle

Figure 4-3 Walking Needs Identified at Public Forum



Exhibit 5.35 Walking and Biking Needs Identified in the Portland Peninsula Transit Study

Figure 4-6 Bicycling Needs Identified at Public Forum



Streets, as well as between Congress and Cumberland Streets. There is also limited consistency in the sidewalks along the corridor, both in terms of materials and in their very existence. According to the GIS files, sidewalks are present on most other roads in the study area, except along much of Somerset, Kennebec Diamond, Anderson, and Cove Streets as well as on the north side of Fox and Fore between Franklin and India Street. Sidewalks are either bituminous, concrete, or brick depending on the location in the Franklin Street corridor. The presence of worn dirt paths has been discussed previously and is shown in Figure 5.63.

Pedestrian crossing conditions at intersections are inconsistent along the corridor. Pedestrian crossings associated with the Bayside Trail and a few other locations appear to be ADA compliant with appropriate cross slopes and widths for curb ramps and truncated domes. Crossings at all the other intersections do not appear to be ADA compliant. Some pedestrian crossings have actuation buttons

with pedestrian countdown information and ramps that would qualify under ADA guidelines, but many do not (Figure 5.64). Many of the existing crosswalk markings have faded and are not clear. Again, the Sidewalk and Ramp Inventory from 2009 provides information on ramps and push buttons (see Exhibit 5.37 and Exhibit 5.38).

### BICYCLE FACILITIES

Exhibit 5.42 shows both existing and planned bicycle facilities according to the City's GIS files, as well as the ranking of pavement conditions. There are no bicycle facilities along the length of Franklin Street, nor on most streets in the study area except Marginal Way. The pavement quality is general rated F on Franklin Street, and is rated a C on other key streets such as all of India Street and Washington Ave, part of Marginal Way and Cumberland Ave, as well as most of Congress and Commercial Streets.

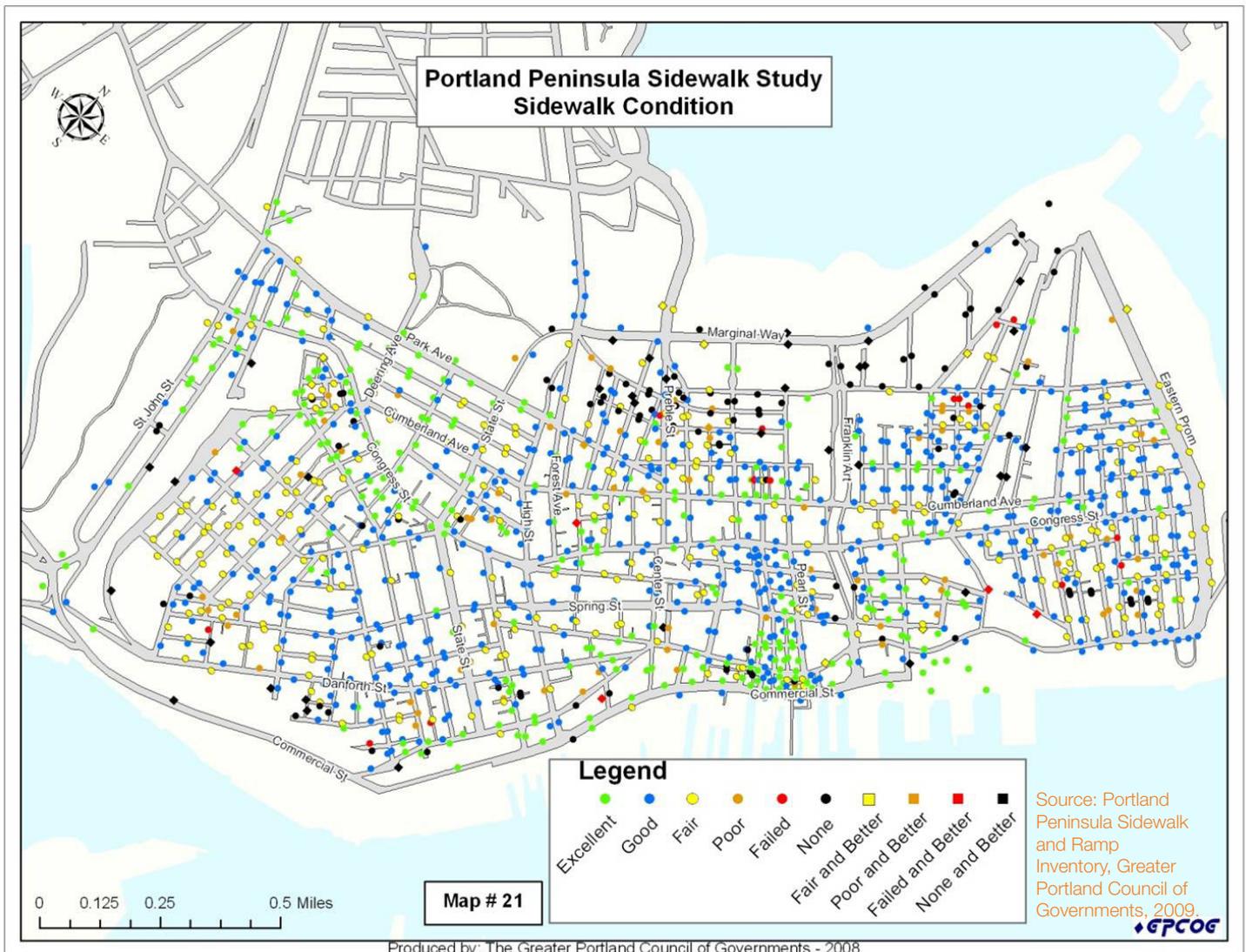


Exhibit 5.36 Sidewalk Conditions from the Portland Peninsula Sidewalk Study



The Bayside Trail crosses Franklin Street at the Marginal Way intersection. There are no other direct bike trail intersections on Franklin Street, though it is possible to access the Back Cove Trail under the I-295 overpass, as well as the Eastern Promenade Trail across Commercial Street.

### PEDESTRIAN TRIPS

As illustrated in Table 5.6, pedestrian volumes at the intersections along Franklin Street steadily increase going southward towards Commercial Street from I-295. This is the opposite pattern of motorized vehicular traffic. In all cases, the majority of pedestrians at each intersection are navigating the cross street rather than Franklin Street itself. The peak hour for pedestrian volumes (the hour within a 12 hour period where the greatest numbers of pedestrians were counted) varies from intersection to intersection; however, there is a trend towards an earlier peak hour (generally between

12:00pm and 2:00pm) as you move from north to south along the corridor. Pedestrian counts at the mid-block crossings between Somerset Street and Cumberland Avenue are not available at this time. However, it is clear from the degree in which the desire lines are established and from field surveys where our team witnessed mid-block pedestrians that both of these crossings are heavily used by people navigating across Franklin Street from East Bayside towards Bayside and Downtown.

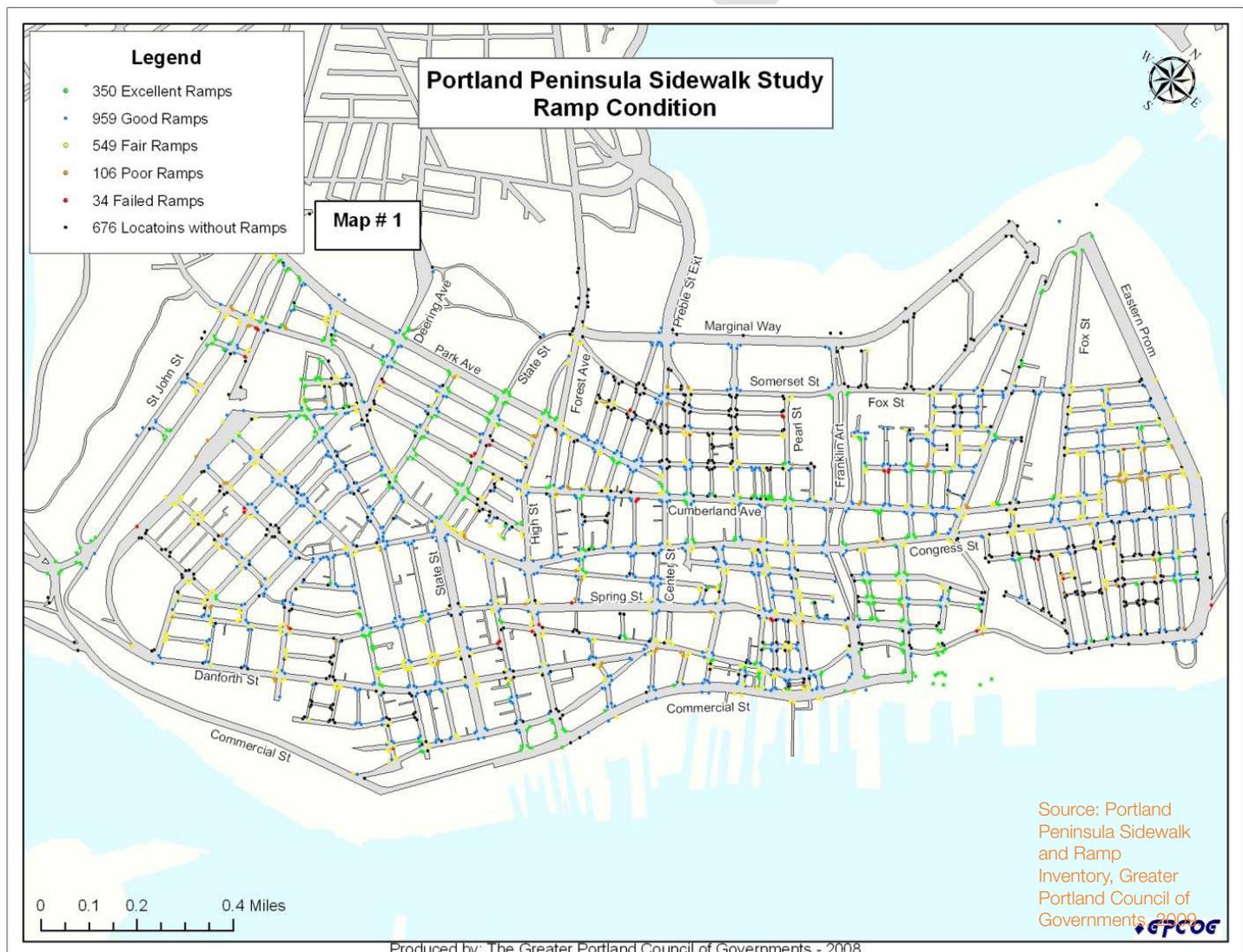


Exhibit 5.37 Ramp Conditions from the Portland Peninsula Sidewalk Study



Figure 5.64. Inconsistent Pedestrian Crossing Push Buttons/ Actuation and Treatments

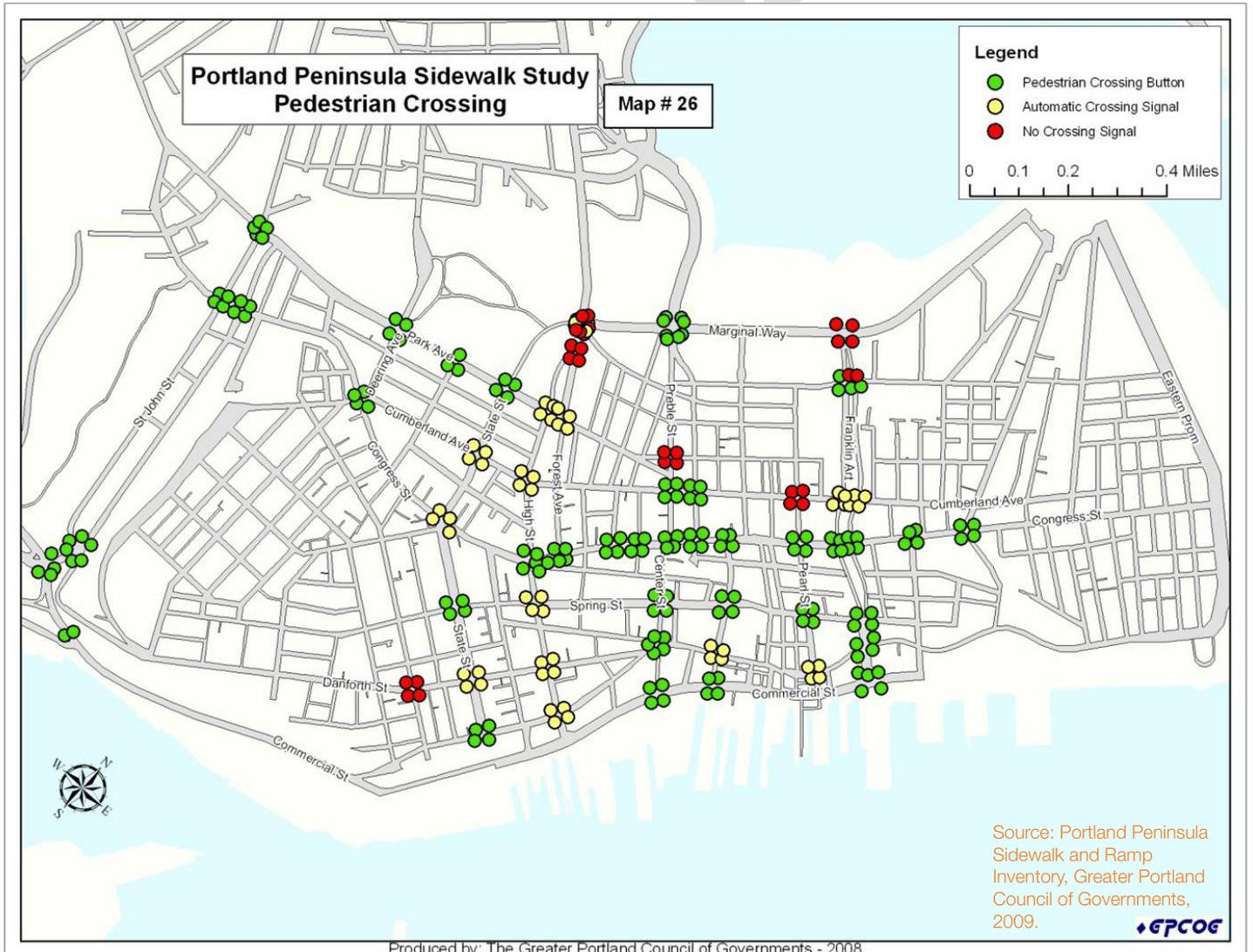


Exhibit 5.38 Pedestrian Pushbutton Conditions from the Portland Peninsula Sidewalk Study



Table 5.6 Pedestrian Volumes at Intersections along Franklin Street

Junction	Total Daily Crossing Volume (4-ways)	Total Daily Crossing Volume-(Across Franklin Street)	Total Daily Crossing Volume (Along Franklin Street)	Pedestrian Peak hour	Pedestrian Peak hour crossing volume (4-ways)
I-295	n/a	n/a	n/a	n/a	n/a
Marginal Way	143	124	19	5:00-6:00pm	24
Somerset/Fox Streets	161	131	30	3:00-4:00pm	25
Cumberland Avenue	387	326	61	1:00-2:00pm	65
Congress Street	735	685	50	11:00-12:00pm	101
Middle Street	910	805	105	1:00-2:00pm	132
Fore Street	1140	707	433	12:00-1:00pm	185
Commercial Street	1345	1152	193	12:00-1:00pm	243

### BICYCLE TRIPS

Although there is a sizeable bicycle presence on the Portland Peninsula as a whole, MDOT counts reveal that bicycle traffic is minimal along the Franklin Street corridor. As an example, although the stretch of Franklin Street between Marginal Way and Somerset Street is in direct proximity to recreational amenities and commercial destinations, only one bicycle was counted travelling on Franklin Street between the intersections of Marginal Way and Somerset Street over the entire 12-hour period during the April, 2011 MDOT counts. While seasonal factors may have played a role in this low number, it's likely that the availability of alternative bicycle routes with better cycling infrastructure and lower traffic speeds and volumes plays a more significant role.

Parallel bicycle routes were often identified by the Committee to be preferred over using Franklin Street. One example of an alternative parallel route was Pearl Street, because of its lesser gradient and more comfortable cycling conditions. This street connects to most of the same streets that cross Franklin Street, from Somerset to Commercial Streets. One opportunity to enhance bicycle circulation in the study area might be to complete the missing link of this connection, from Somerset Street to Marginal Way, crossing the Bayside Trail.

### MAJOR GENERATORS/ATTRACTORS

The base map (Exhibit 1.1) includes major destinations in the study area. In addition, the Bicycle and Pedestrian Committee was asked to provide further feedback on major generators and attractors of walking and cycling trips. The feedback is shown in Exhibit 5.43. In addition to the pre-existing points of interest, committee members emphasized various smaller-scale commercial concentrations, such as on India Street and Anderson Street, as well as the bicycle shop Cyclemania, multiple breweries, and a few smaller developments. It is clear

that trip generators are spread throughout and adjacent to the study area, and that various desire lines could emerge from this pattern of attractors and generators. What was clear again was the division between the residential neighborhoods, which are trip generators, and their associated destinations. Committee members described it as being an imbalance, where there is a greater attraction for trips on the southwest side of the corridor. The Committee members stated that there was less reason to travel to the northwest portion of the study area unless a pedestrian or cyclists is a resident of the East Bayside or India Street neighborhoods.

Portland High School, as well as the King Middle School (not in the study area), are key attractors of note. These destinations are a large part of the reason that the Oxford and Lancaster desire lines remain so strong. Illustrating the strong attraction of these destinations, the chain link fence has been removed at the Oxford Street crossing and the path on the west side of the corridor is paved leading to Pearl Street.

The park-and-ride off of Marginal east of Franklin was not recognized as a major attractor for walking or cycling trips. There are additional key attractors not in the study area, but worth mentioning in this analysis. Some of these include the Trader Joe's and Hannaford shopping plazas to the west, as well as the commercial districts on Congress and Commercial Streets to the south and west.

### CHALLENGES/OPPORTUNITIES FOR PEDESTRIANS AND CYCLISTS

Exhibit 5.44 shows challenges to walking and cycling in the study area as identified by the Bicycle and Pedestrian Committee, as well as desire lines, which will be discussed in the next section. While Franklin Street provides a high level of mobility for vehicles, the current design results in long pedestrian crossings, long distances between pedestrian crossing opportunities, poor pedestrian sight lines, and an



Figure 5.65. Gap in Chain Link Fence and Continuation of Oxford Desire Line



Figure 5.66. Examples of Pedestrians and Cyclists Using Franklin Street

overall lack of cycling facilities. Pedestrian desire lines, or places where pedestrians prefer to cross the street, are clearly visible as worn paths across the median that separates the two sides of Franklin Street. Although Franklin Street could provide users with a direct route to bicycle and pedestrian amenities such as the Back Cove, Bayside Trails, and even the East Coast Greenway, the character of the roadway is generally felt to be appropriate only for experienced, confident cyclists and pedestrians. This was a commonly expressed sentiment from the Committee. However, we saw in field visits that pedestrians, including those with physical or other disabilities, as well as cyclists, still use the corridor despite its substandard conditions.

The multimodal LOS analysis also provides support for these perceptions, as it indicates that the pedestrian and cyclist LOS are worse than the vehicular LOS. However, as is usually the case, the LOS measurement does not tell the whole story of the challenges that exist for pedestrians and cyclists. These challenges and the corresponding opportunities are explored further in this section.

The data provided in the GIS files indicate that there is inadequate pedestrian and infrastructure along Franklin Street to support the travel behavior described above.

Intersections were identified as key challenge areas for both cyclists and pedestrians. Intersection treatments are discussed further in Section 5.5. However, there are a few key issues for non-motorized users. For example, turning traffic can be a particular challenge for both cyclists and pedestrians, and while there are warnings along the corridor for drivers to look for pedestrians and cyclists, the geometry and other conditions are not conducive to such care. The turning radius at each corner of the intersection of Franklin Street at Middle Street was identified as a particular challenge. Crossings at both Congress and Cumberland are confusing for all users, resulting in less safe conditions for pedestrians

and cyclists trying to navigate among equally confused drivers.

Cyclists face an additional challenge of limited to no bicycle parking opportunities along the corridor. The only parking rack for cyclists that was observed along Franklin Street was a comb type. This type of bicycle rack has been generally recognized as not best practice because the close spacing of the parking reduces its usability and efficiency. These racks also only support the bicycle by the front wheel, whereas it is desirable to provide two points of contact for the bicycle. Finally, the rack itself is in extremely poor condition. Additionally, the Whole Foods property offers significant bicycle parking. Otherwise, there is a dearth of parking on the corridor. Extensive guidelines have been developed for bicycle parking, such as the Bicycle Parking Guidelines from the Association of Pedestrian and Bicycle Professionals<sup>1</sup>, which could be used as a guide for identifying additional locations for the placement of these facilities in the corridor.

Zoning can be used to ensure the new developments meet minimum bicycle parking requirements that are considered to be good practice. Portland's current zoning (revised in 2013) has provisions for bicycle parking. For example, B-2 and B-2b requirements include, "Such establishments should be readily accessible by automobile, by pedestrians and by bicycle."<sup>2</sup> The zoning code for B-7 further encourages promoting no motorized vehicle traffic through "the installation of bicycle amenities, such as bicycle racks and storage areas."<sup>3</sup> There are requirements that new developments with off-street parking provide bicycle parking. The site plan standards for bicycle parking include the following:<sup>4</sup>

1 See [http://c.y.mcdn.com/sites/www.apbp.org/resource/resmgr/bpg\\_exec\\_summary\\_4-21-10.pdf](http://c.y.mcdn.com/sites/www.apbp.org/resource/resmgr/bpg_exec_summary_4-21-10.pdf) for the Executive Summary.

2 Source: City of Portland, Code of Ordinances, Land Use, page 14-252. See <http://www.portlandmaine.gov/citycode/chapter014.pdf>.

3 Source: City of Portland, Code of Ordinances, Land Use, page 14-413.

4 Source: City of Portland, Code of Ordinances, Land Use, page 14-756.



**Residential Structures:** Two bicycle parking spaces for every five dwelling units

**Non-residential Structures:** Two bicycle parking spaces for every ten vehicle parking spaces for the first 100, plus one for every 20 vehicle parking spaces over 100.

**Any Development:** If there are up to ten vehicle parking spaces, at least two bicycle parking spaces.

The zoning code refers to the Technical Manual, which provides some specific guidelines on the type of bicycle parking that can be provided and approved bicycle racks. For example, it prohibits racks that only support the front wheel.

When businesses choose to not provide parking, the fees received in lieu of parking may only be spent on certain capital improvements, such as publicly accessible bicycle racks and shelters or pedestrian and bicycle infrastructure.

While guidelines exist for the City of Portland, it is important to recognize that some cities and towns have spent effort in intensifying their code as well as their guidelines for the type and location of bicycle parking. For example, Cambridge, MA recently updated their bicycle parking requirements in their zoning code and has extensive bicycle parking guidelines.

#### DESIRE LINES/CONNECTIONS

Connections are a theme that have been discussed throughout this existing conditions report, and are also a major topic for cyclists and pedestrians. One comment from the Committee was that even if study area streets are not re-connected for motorized vehicles in the immediate future, there could be consideration for better bicycle and pedestrian reconnections. This topic was also addressed in the Phase I study.

Exhibit 5.44 includes common travel paths as identified by the Bicycle and Pedestrian Committee. In addition to the already discussed disconnected streets (Oxford, Lancaster, Federal, Newbury), other connections were identified as lacking. This included the following:

- East-west connections Pearl from Somerset to Marginal
- Connections between Bayside Trail to all destinations along



Figure 5.67. Warning to Watch for Cyclists on Turns at Intersection

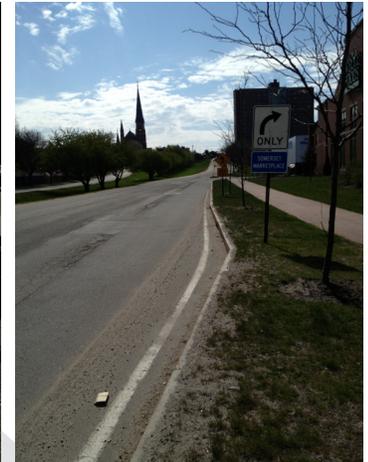


Figure 5.68. Poor Conditions and Geometry for Turning Lanes



Figure 5.69. Comb Bicycle Rack on Franklin Street (near Fore Street)



Figure 5.70. Ideal Bicycle Parking

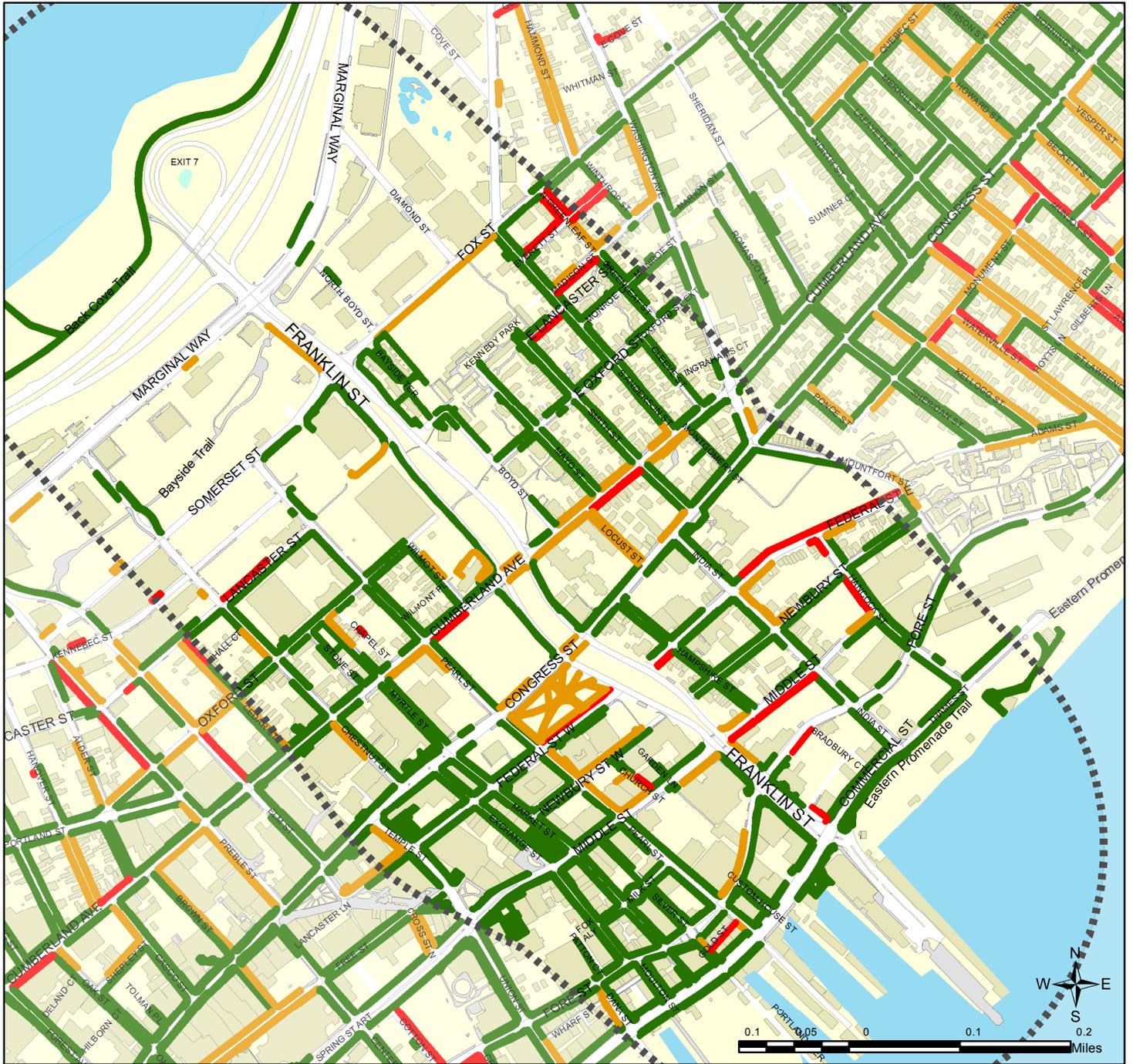
the trail

- Easier wayfinding for the recently improved connection between Back Cove and Franklin Street

Of the streets that were discussed for reconnection, Newbury was identified as a less critical connection, because the street is shorter. Oxford, Lancaster, and Federal were identified as higher priorities. Pearl Street and Middle Street were both identified as good alternatives to biking on or along Franklin Street.



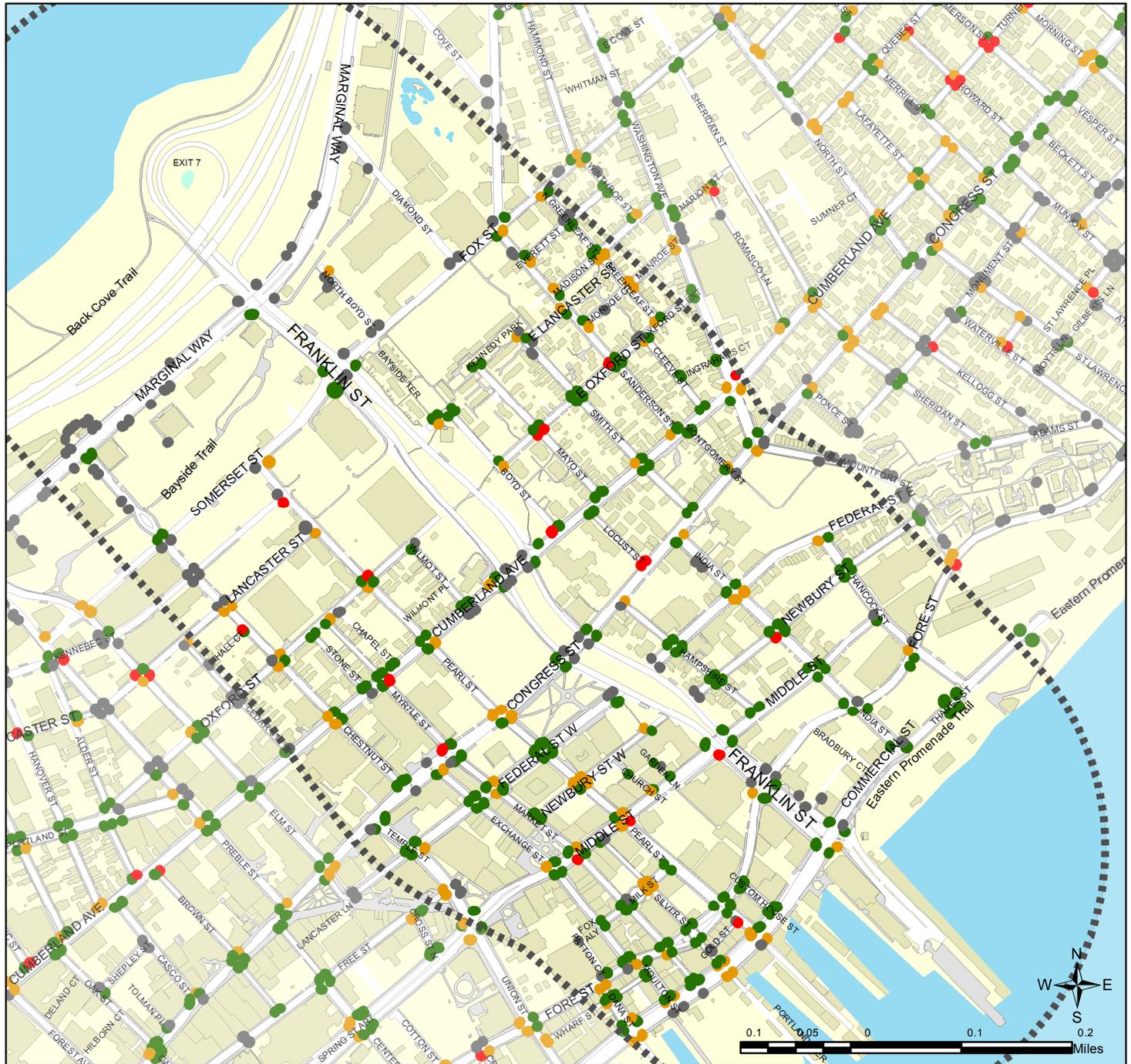
Exhibit 5.39 Pedestrian Infrastructure



**Legend**

- StudyArea
- Sidewalk Conditions**
  - Good
  - Fair
  - Poor

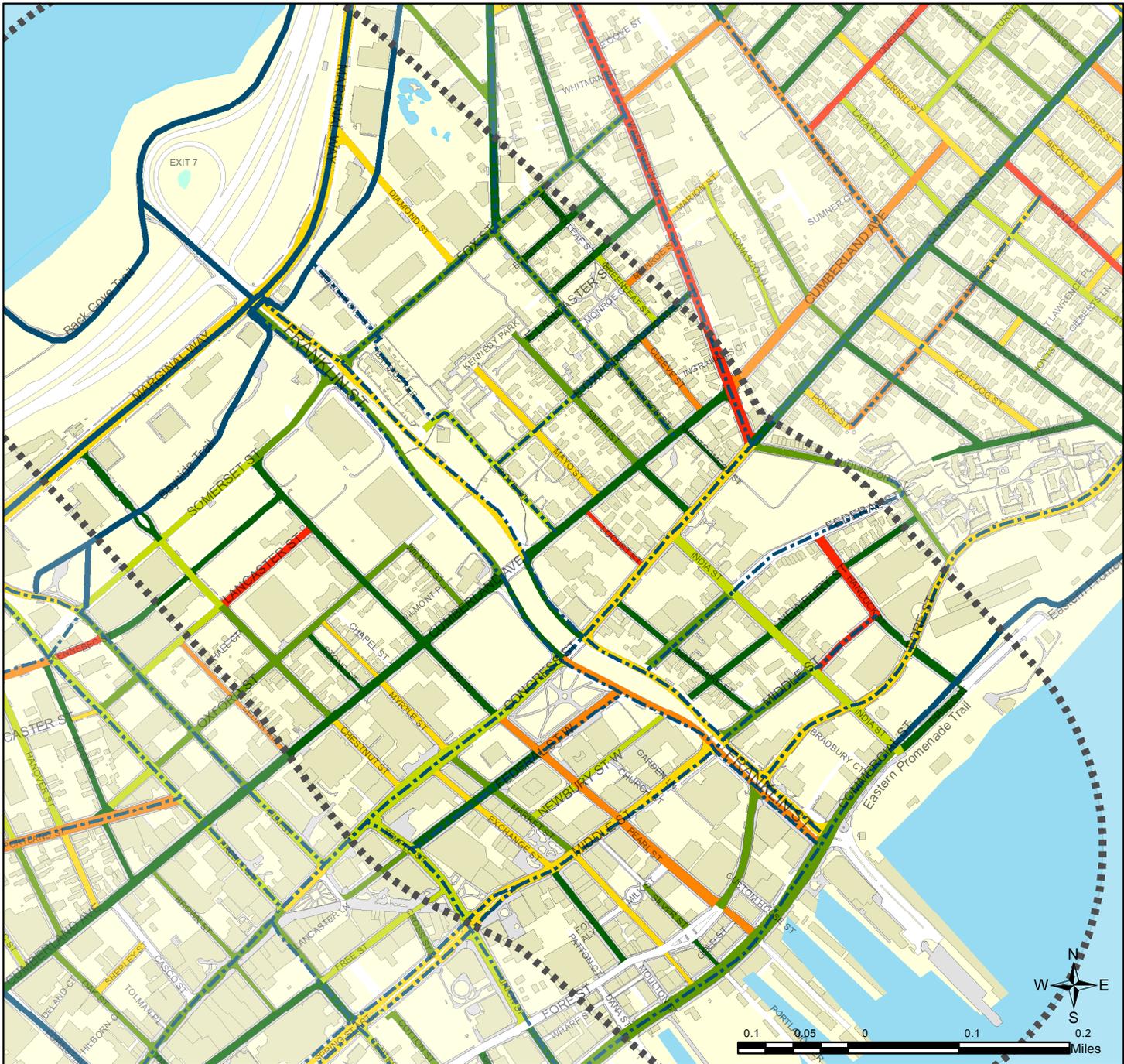
Exhibit 5.40 Sidewalk Conditions



**Legend**

-  StudyArea
- Accessibility Ramps**
-  No Ramps
- Ramp Conditions**
-  Good
-  Fair
-  Poor

Exhibit 5.41 Accessibility Amenities



Legend	
	StudyArea
	Existing
	Planned
	Funded
	Good
	Fair
	Satisfactory
	Poor
	Very Poor
	Serious

Exhibit 5.42 Bicycle Infrastructure and Network

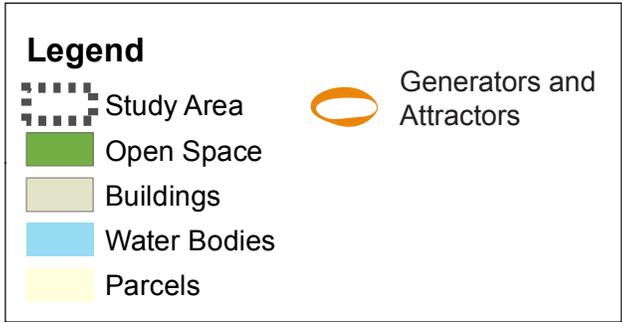


Exhibit 5.43 Major Generators / Attractors

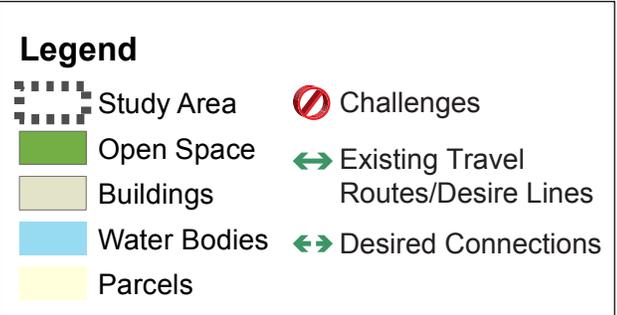
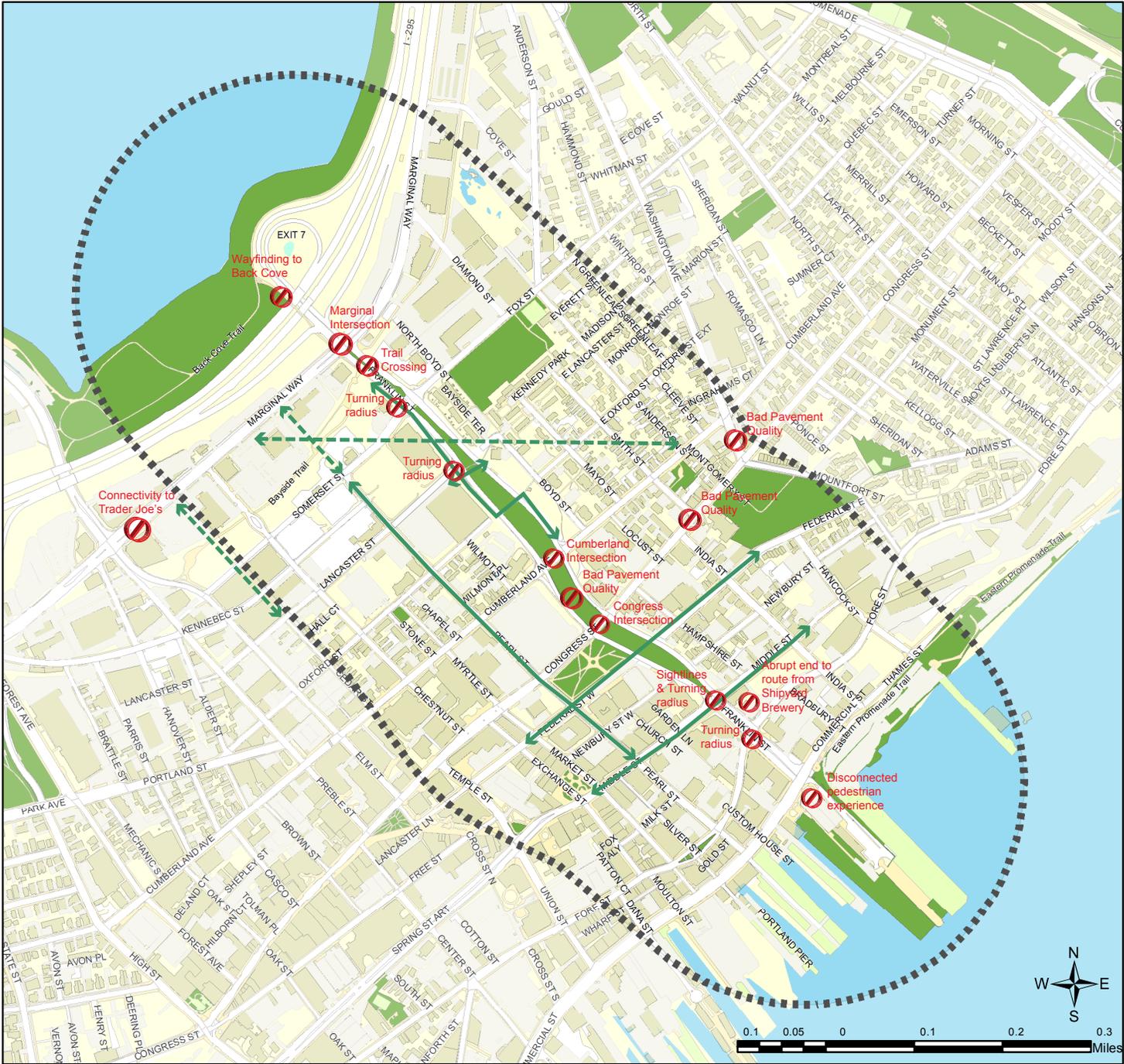


Exhibit 5.44 Challenges and Desire Lines

### 5.5.6. Transit Service Analysis

In and of itself, Franklin Street has not played a significant role in the Portland Peninsula's transit network.

Historically, Portland's streetcar system was focused on principal double-tracked routes on Congress Street and along Park Street and Portland Street, with single tracks on three streets roughly parallel to Franklin – Elm and Cross Streets (formerly connected), Market Street, and Pearl Street – as well as on three streets roughly perpendicular to Franklin – Oxford Street, Middle Street, and Commercial Street. Forest Avenue also had extensive sections of double streetcar track.

The present bus routes 1 through 7 operated on the Peninsula by Portland METRO, as shown in Exhibit 5.45, retain the general pattern of the principal car lines, with some changes due to the development of Monument Square. These routes connect central Portland with outlying parts of the city and points beyond, and connect at the system's PULSE transit center on Elm Street between Congress Street and



Figure 5.71. Streetcar Line outside Lincoln Park (1910)

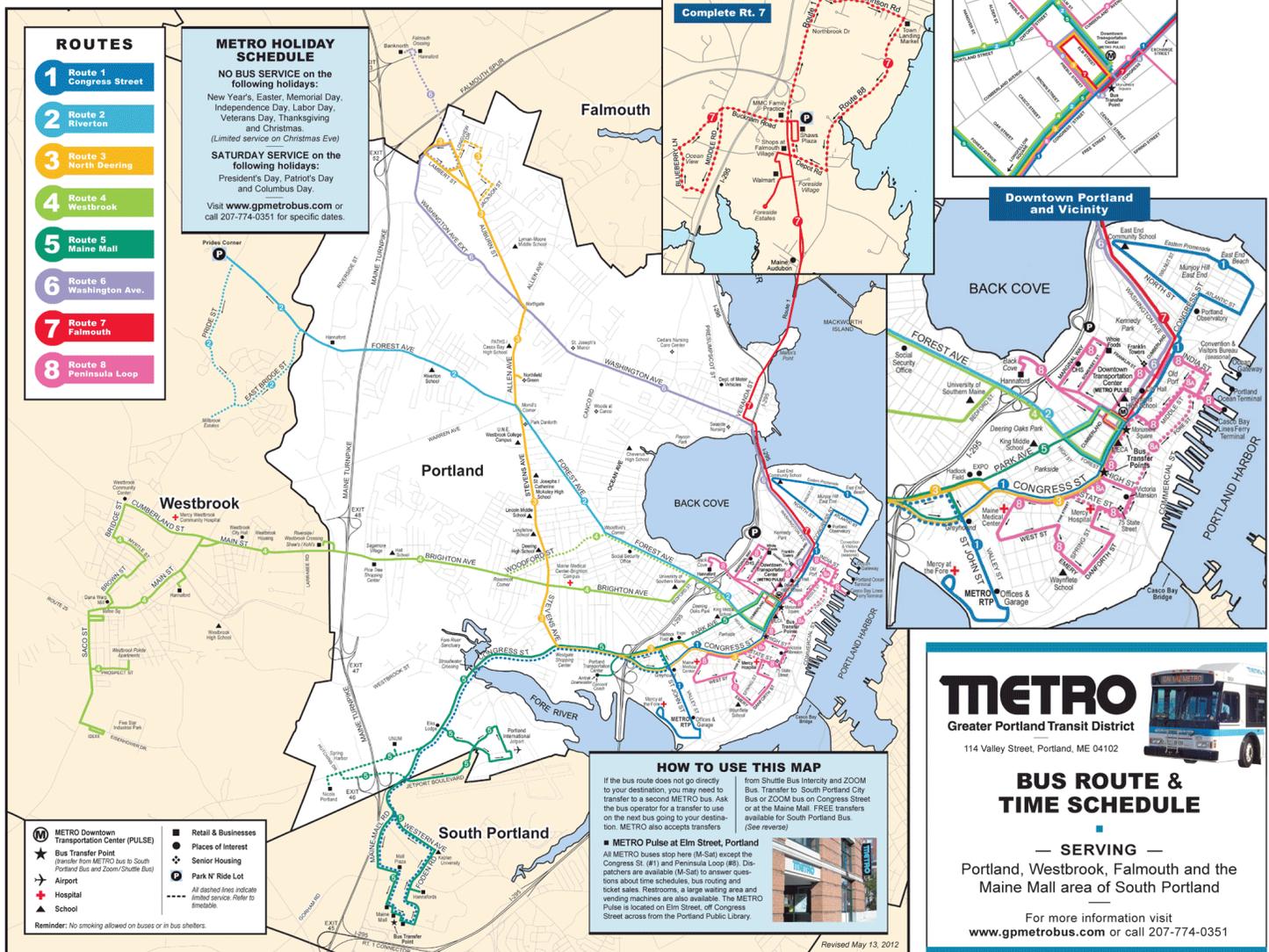


Exhibit 5.45 Portland Metro Map



**Legend**

- Route 1 Congress Street
- Route 6 Washington Ave.
- Route 7 Falmouth
- Route 8 Peninsula Loop
- Other Metro Routes
- MetroStops
- StudyArea

Exhibit 5.46 Metro Routes in Study Area

Cumberland Avenue. The present Route 8 has evolved as a circulator or community bus route, and is confined entirely to the Peninsula.

Currently, the Franklin street area is served by METRO routes 1, 6, 7, and 8, as shown in Exhibit 5.46.

These routes are described in more detail below:

**ROUTE 1 – CONGRESS STREET**

Route 1 is a ‘local’ route, which is largely confined to the Peninsula and serves the neighborhoods of East Bayside, Downtown, West Bayside, India Street, and East End. Buses typically operate at a frequency of about two per hour (30 minute headways) with service on all seven days of the week. Within the Franklin street area, Route 1 primarily runs along Congress Street with stops north of the intersection with Franklin, and next to Lincoln Park.

**ROUTE 6 – NORTH DEERING AND ROUTE 7 FALMOUTH**

Routes 6 and 7 serve North Deering and Falmouth respectively. Buses operate along Congress Street and Washington Street within the Peninsula before running along the Tukey bridge to serve points north. Similar to Route 1, Routes 6 and 7 have stops north of the intersection of Congress and Franklin, and on Congress Street next to Lincoln Park. Service frequency on Route 6 is two per hour (30 minute headways) during peak periods, and once per hour (60 minute headways) throughout the rest of the day, while that on Route 7 is once per hour though the day. Both routes operate Monday to Saturday; there is no service on Sunday.

**ROUTE 8 – PENINSULA LOOP**

Route 8 is a loop route that is confined to the Peninsula. It has three distinct ‘arms’ that connect the PULSE center with Maine Medical Center, Marginal Way and a Hannaford supermarket, and the waterfront at Casco Bay Ferry Terminal. Buses run in a roughly counter-clockwise direction at a

frequency of about two per hour (30 minute headways) with service from Monday to Saturday. Route 8 has three short and separate one-way segments on Franklin Street:

- Eastbound from Marginal Way to Somerset Street with a stop at the intersection of Marginal Way and Franklin;
- Westbound from Congress Street to Cumberland Avenue with stops at the intersection of Congress and Franklin and at the intersection of Cumberland Avenue and Franklin; and
- Eastbound from Middle Street to Commercial Street with stops at the intersection of Middle Street and Franklin, and next to the Casco Bay Ferry Terminal.

The following table lists the transit stops located in the Franklin Street area, and their characteristics.

Stop Location	Routes Served	Amenities
Marginal Way and Franklin Street (southwest of intersection)	8	None
Cumberland Avenue and Franklin Street (southwest of intersection)	8	None
Congress Street and Franklin Street (northeast of intersection)	1,6,7,8	Bench and light
Congress next to Lincoln Park	1,6,7	None
Middle Street and Franklin (southwest of intersection)	8	None
Casco Bay Ferry Terminal	8	Waiting room with bench, lighting, snack machine, etc.

According to a passenger survey conducted by PACTS



Figure 5.72. Transit Amenities at the Casco Bay Ferry Terminal



Figure 5.73. Transit Amenities at Congress Street and Franklin Street



Figure 5.74. Most Typical Transit Stop Conditions (photo taken at Franklin Towers)

in 2011, Routes 1, 6, 7, and 8 account for about 40% of Portland METRO's total ridership. The present timetable and routing suggests that these routes accounts for about 35% of the system's revenue vehicle miles as reported in the National Transit Database (NTD) for 2011. The survey also indicated significant transfer activity from Route 1 to Route 6 (4.8%), and to and from Route 8 (2.5%).

### 5.5.7. Parking Assessment

There is minimal on-street parking along Franklin Street. At the southerly end of the corridor, between Fore and Commercial Streets, there are four (4) metered parallel spaces (2-hour limit) on the northbound side. The remainder of the corridor has no on-street parking.



Figure 5.75. On-street Parking on Franklin Street (Northbound Side near Commercial)

## 6. Common Themes

The purpose of this analysis is to delve into a much greater level of detail regarding the existing conditions to build on the Phase I project (see <http://www.portlandmaine.gov/franklinstreet.htm>). Data, field visits, and stakeholder input were used to develop this detailed story of the study area, consisting of Franklin Street and a quarter of a mile in each direction into the surrounding area. This document analyzing existing conditions contains an extensive amount of information organized by very different but overlapping topics of focus, from zoning law to development patterns; from transportation conditions by different modes to streetscaping and urban design. However, there are common themes running throughout that can be used to guide the refinement of alternatives in this Phase II project. Some of these common themes and some possible preliminary direction on alternatives development include:

- **Nodal development:** Franklin Street is fragmented and not a cohesive and continuous corridor in terms of development, streetscape, or traffic patterns. In all areas, nodes of development or gateway treatments may be more effective than consistent redevelopment or treatments along the entire corridor. This is a key consideration particularly for intersections, such as Cumberland and Franklin, as well as for entry points, such as the I-295 overpass and Casco Bay Ferry Terminal.
- **Reconnections:** Franklin Street is a dividing force between neighborhoods and adjacent land uses. The key east-west desire lines are inadequately met. Reconnections of all kinds have been discussed in this document, including the wayfinding along those reconnections. If motorized vehicular connections are not always desirable, non-motorized connections can be prioritized by installing safe pedestrian and bicycle crossings.

- **Grading:** The grade of Franklin Street currently presents a challenge for non-motorized transportation uses, reconnection of streets, and stormwater management. The desired grading for Franklin Street will be taken under careful consideration in the alternatives.
- **Possible Realignment:** The realignment of Franklin Street, whether it be north or south, and the possible reduction or elimination of the median could offer a number of opportunities. These could include additional mixed-use development as well as the restoration of Lincoln Park. The realignment of Franklin Street may present stormwater management challenges/opportunities.
- **Scale and Balance:** The scale of existing development as well as of the roadway is inconsistent and often inappropriate along Franklin Street. To be a more pedestrian, bicycle, and transit-oriented street, essentially, to be a more Complete Street, more appropriate scale is needed. This can include softening of development that is out-of-scale, such as the Franklin Towers, redesigning the street itself, better utilizing underutilized space with in-fill, and other strategies.

The next step is to present this information for feedback from the Public Advisory Committee. With this feedback, the alternatives from the Phase I study will be refined to present three well-vetted alternatives that respond to the specific challenges of this study area. These alternatives will be evaluated, as much as possible using quantitative data, much of which was discussed here. From that a final recommendation will be made for the Franklin Street study area.

Congress Street Intersection (1870)

Lincoln Park in full glory and the surrounding urban fabric is seen in this 1870 picture. Franklin Street is seen as a minor street in this image.



Source: Maine Historic Preservation Society  
Photo by: E&HT Anthony



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