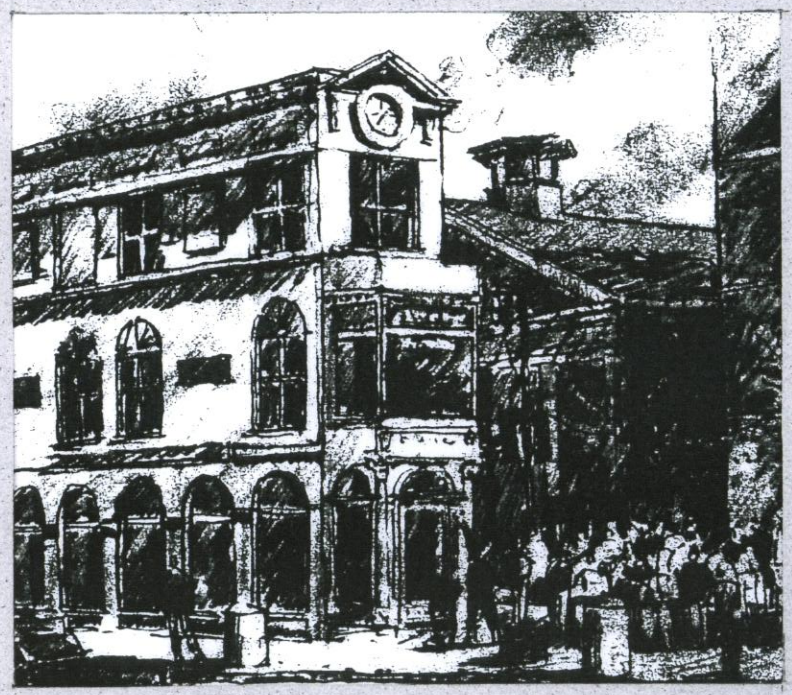
Portland Downtown Traffic & Streetscape Study



Summary Report

Fall 1999

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I. INTRODUCTION

Study Objectives

Wilbur Smith Associates (WSA), Richardson & Associates, and Gamble Design were retained by the Portland Area Comprehensive Transportation Committee (PACTS) and the City of Portland to develop a traffic study and streetscape study for Portland's Downtown. The objectives, as developed by the City of Portland and agreed upon during the Study process, included:

- Investigate and analyze traffic access into and within the Downtown;
- Develop more on-street parking;
- Minimize conflicts between pedestrians and vehicular traffic;
- Develop a pedestrian-friendly streetscape in the Congress Street corridor; and
- Create stronger pedestrian linkages between the Old Port and the Congress Street corridor.

Study Area

The project study area is illustrated on Figure I-1. The analyses generally focus on Congress Street between Franklin Arterial to the east and State Street to the west, the entire length of Free Street, and Temple Street between Congress Street and Middle Street/Spring Street.

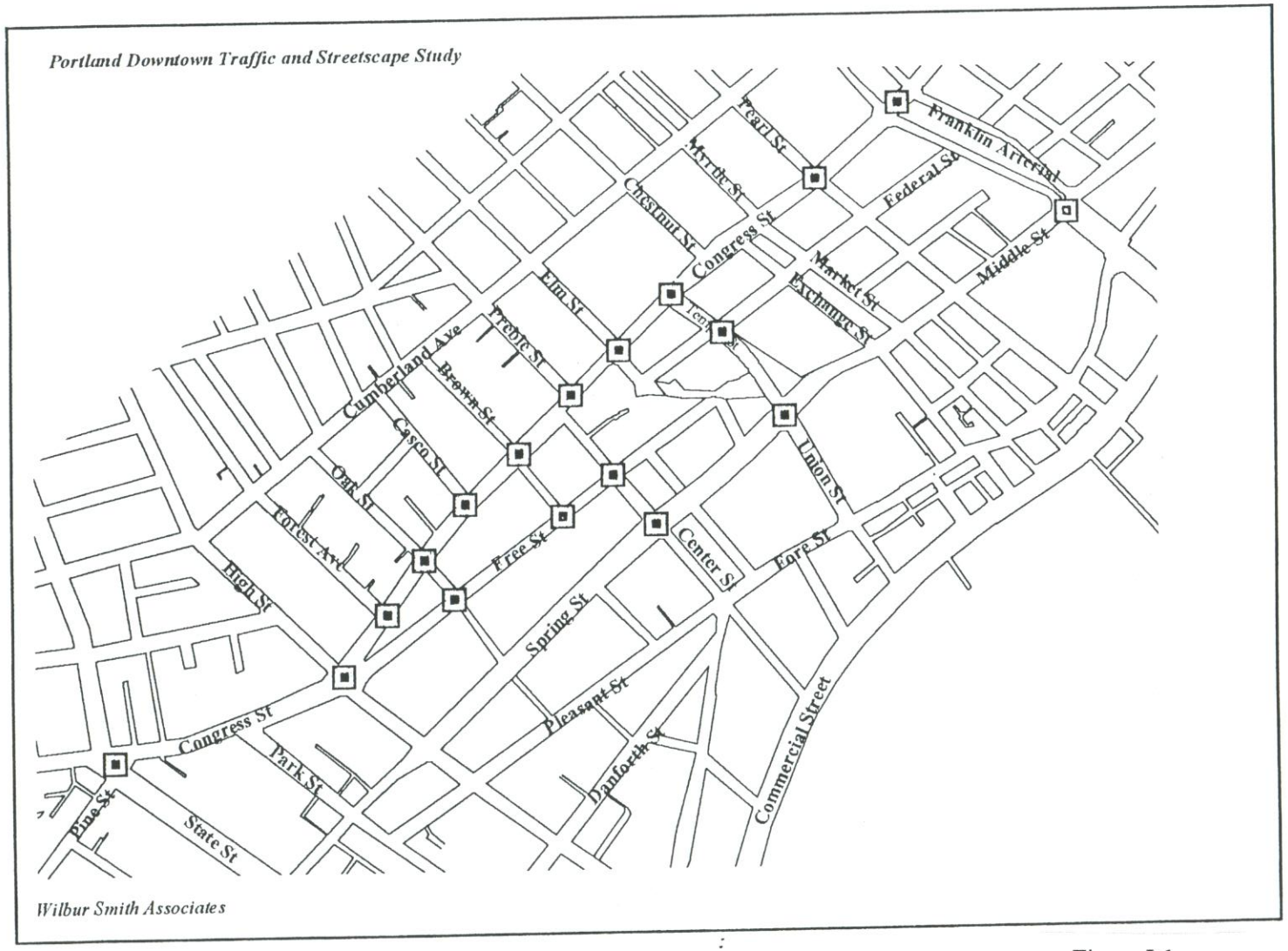

Portland Downtown Traffic and Streetscape Study
Pearl St
Franklin Arterial
Marble St
Federal St
Chestnut St
Congress St
Middle St
Market St
Exchange St
Elm St
Lena St
Preble St
Cumberland Ave
Brown St
Casco St
Union St
Oak St
Forest Ave
Free St
Center St
Fore St
High St
Spring St
Pleasant St
Congress St
Park St
Danforth St
Commercial Street
Pine St
State St
Wilbur Smith Associates

Figure I-1

II. EXISTING CONDITIONS - TRANSPORTATION

The following chapter summarizes existing transportation conditions within the project study area. The material included represents a summary of information contained in the document Technical Memorandum, Evaluation of Existing Conditions – Transportation.

The purpose of this Chapter is to present the analysis of existing transportation conditions in Downtown Portland. It details traffic conditions within the study area, pedestrian conditions, accident history, on-street parking, and identifies existing deficiencies and problems. Thus, it provides the benchmark for assessing the impacts of growth, and changes to the transportation infrastructure within the study area, and for identifying future transportation requirements.

Traffic Volumes

Needs for and types of traffic control devices, phasing and timing settings for traffic signals, and basic design elements for reconstruction or other improvements, all require detailed information on turning movements of traffic at intersections. Accordingly, at critical locations within the study area, manual turning movement counts were performed during the AM, Mid-day and PM weekday time periods. Additionally, turning movement counts were conducted during the Saturday afternoon period.

Intersection turning movement volume data were obtained at the following locations:

- Congress Street/State Street
- Congress Street/High Street
- Congress Street/Forest Avenue
- Congress Street/Oak Street
- Congress Street/Casco Street
- Congress Street/Brown Street
- Congress Street/ Preble Street
- Congress Street/Elm Street
- Congress Street/Temple Street
- Congress Street/Pearl Street
- Congress Street/Franklin Arterial
- Temple Street/Federal Street
- Temple Street/Spring Street
- Spring Street/Center Street
- Free Street/Center Street

Future traffic volumes were developed to assess the impact of recommended changes on traffic operations at intersections. It is important to ensure that changes implemented in the near future remain effective for many years. A ten-year analysis period (1998 to 2008) was used for this assessment.

Several sources were utilized for information to derive growth factors for the analysis. These included:

- MDOT historical traffic count data;
- PACTS Travel Demand Model 25 year traffic forecasts;
- Population and employment projections for the study area.

After review of these sources, it was determined that an annual growth rate (compounded) of 2 percent per year would be appropriate for use for the study. It was not necessary to undergo a rigorous analysis to develop an 'exact' guesstimate of anticipated growth. Based on the above sources, using 2 percent ensures that likely growth will reasonably fall below this level. It was decided to use this aggressive growth rate to ensure that any recommended changes could reasonably accommodate 'worst case' growth. Two percent growth, compounded annually, equals a doubling of traffic in a 35-year period. Each turning movement was factored by 22 percent (representing 2% over a 10 year period).

Pedestrian Conditions

The quality of the pedestrian experience within a downtown is an important ingredient to its success. Most all trips to the downtown have a pedestrian component to them. These may be a walking commuter trip from a West End or Munjoy Hill residence to the business district or a shopper returning to their car in a parking garage. The attractiveness, convenience and safety of the pedestrian interface to other modes are particularly important. These include connections from parking garages to shops and to transit stops.

Achieving a quality pedestrian environment will require determining the desired balance between the many competing users of the street. How the available street space is allocated will be governed by this balancing. These users include automobiles, pedestrians, bicyclists, trucks, and buses. Even within each category of users there are different needs. Some motorists or trucks are destined for the downtown while others may be through-traffic. Design decisions can be made to better accommodate a user or to try to divert a user to other streets. For instance, it is important to maintain accessibility for local delivery trucks on Congress Street, but it might be desirable to discourage or restrict through-trucks.

The quality of the pedestrian environment is determined by a complex combination of numerous attributes. These attributes include:

- the *continuity* of the pedestrian network;
- the *quality* of construction and maintenance;
- *presence of amenities* such as benches and trash receptacles;
- *safety and convenience* of street crossings;
- *urban design characteristics* such as the presence of street trees, places to linger for social interaction and visual interest and building placement and design.

The requirements of pedestrians can vary widely depending on the user group. A person in a wheelchair will rely on well designed curb ramps to be present at each corner and at driveways. A visually impaired person will require non-visual cues for crossing times provided at intersections and an adequately wide pathway free of obstructions. A senior citizen may require additional crossing time at wide intersections.

The principal items of interest in this section are the pedestrian facilities themselves: sidewalks, crosswalks, curb ramps, and pedestrian equipment. The combination of these items (with the urban design elements) determines the overall quality of the pedestrian environment.

Sidewalks

The portion of the downtown within the study area has a mixed pedestrian environment, ranging from excellent to poor. Along Congress Street, sidewalks are primarily brick with several areas having portions that are concrete. Several locations on the City Hall side near the Franklin Arterial are patched with bituminous. While passable to most, the uneven surface will cause difficulties and discomfort to those in wheelchairs to navigate. This is especially true in the section of sidewalk from Myrtle Street to Franklin Arterial. On side streets and Free Street, sidewalks are primarily brick with some concrete. Sidewalk widths along Congress Street are adequate in general, but the width can be restricted by sidewalk furniture, sign posts, and sidewalk signs.

Curb Ramps

Important Considerations for Curb Ramp Design

- Two curb ramps per corner should be provided.
- Curb ramps should align in the direction of crosswalks.
- Curb ramps should be at right angles to the curb.
- Curb cuts should be located in the middle of the crosswalk or as wide as the approaching crosswalk.
- Curb ramps should meet the street grade smoothly, without a lip or rise.
- Curb cuts should be provided at medians and channeling islands.
- Curb ramp grade should not exceed 1:12 (8.33%).
- Curb ramps are required to be a minimum of 3 feet wide.
- A tactile warning strip is recommended though not currently required.
- Equipment, poles or street furniture should not block access to the ramp.

Source: Based on "Pedestrian Facilities Guidebook", WSDOT, 1997.

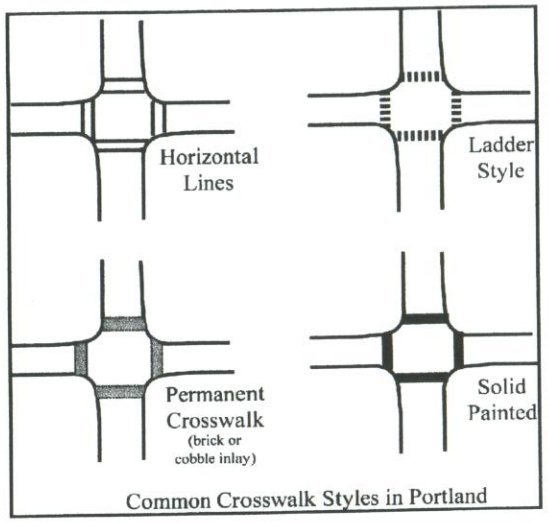
Curb ramps provide continuity of access to sidewalks for those in wheelchairs, with strollers and with difficulties stepping over curbs. As discussed in the Richardson and Associates' *Technical Memorandum #1: Site Inventory and Analysis*, there are five predominant types of curb ramp designs within the study area. As noted in that memo, there is no consistent design of curb ramps from an aesthetic or functional aspect.

Curb ramps are provided at most intersections and crosswalks in the Congress Street corridor. Several existing curb ramps do not provide good accessibility due to their design or maintenance. Several intersections and driveways do not provide curb ramps at corners at all. These force wheelchair

users into the street or discourage their travel. At other locations, curb ramps are poorly aligned with crosswalks or are not provided at crosswalks and mid-block locations. At some locations, poles and other equipment impede use of the curb ramp.

Crosswalks

Crosswalks define designated spaces for pedestrians to cross roadways. They are located at intersections, larger driveways or mid-block. The most common crosswalk treatment in the downtown is two horizontal lines extending from corner to corner (top left corner of figure to the right). There are several locations where permanent crosswalks are provided, most notably at the crosswalk on Temple Street across from Bagel Works/Nickelodeon Theater. Other permanent crosswalks are located on Free Street just up from Temple Street and on Federal Street adjacent to Monument Square. The texture of the Federal Street crosswalk is poor for wheelchair users due to the use of inlaid cobblestone.



Common Crosswalk Styles in Portland

There are many different types of crosswalk markings and materials available. There is little research on the relative effectiveness of different markings but several marking types do have higher visibility than others. The least visible type is the horizontal line markings. This is the most prevalent type of marking used in the study area and in Portland. The other types shown have higher visibility but are more expensive to install and maintain. Permanent crosswalks, if installed correctly, have little or no maintenance associated with them and provide good visibility year-round but have much higher initial costs. Painted markings wear off and generally require annual painting.

The Department of Public Works is currently developing standards and guidelines for placement and design of crosswalks. These policies should be adopted as appropriate for use in the study area. These policies and standards are expected to be adopted by the Summer 1999.

Pedestrian Demand and Generators

The design of facilities relies on a good understanding of the anticipated usage. Many locations have constant high usage; other locations may have only occasional high usage due to special events (Cumberland County Civic Center or State Street Theatre). Pedestrian demand is a function of many factors. The most relevant factor is the proximity of pedestrian traffic generators to one another. High pedestrian generators include schools and parks, shopping areas, medical facilities, social services, housing and transit service. Close proximity between these uses and safe and attractive facilities result in higher pedestrian usage.

Numerous uses within the study area generate large numbers of pedestrians. For the purposes of this study, single uses only are generally considered. Generators that are combinations of uses are followed by an asterisk (*). To be considered, the generator does not have to reside within the study area but contribute to pedestrian activity in the study area. Significant generators include: The West End neighborhood*, Maine College of Art, Congress Square Plaza (elder housing), parking garages (Temple Street, Elm Street, Civic Center/Free Street, Maine Way, Public Market), City Hall, the Portland Public Library, the Portland Public Market, the METRO Pulse (bus station), the Portland Museum of Art, the Children's Museum, Post Office (across from City Hall), the Old Port shopping district* and the Munjoy Hill/East End neighborhood*.

Several uses generate large numbers of pedestrians for special events. These uses are Congress Square, the Portland Stage Company, the State Theatre, Oak Street Theater, the Cumberland County Civic Center, Merrill Auditorium and the Farmers' Market at Monument Square (Wednesdays).

Pedestrian counts were performed at 22 locations. Counts were done for the morning, noon, afternoon for weekdays and on Saturday. The following Table provides an overview of the data by street crossing.

Intersection Pedestrian Crossings

Location: Crossing ...	AM	Mid-day	PM	Weekday Total	Saturday 'Peak'
State Street at Congress Street	45	72	53	170	85
High Street at Congress Street	180	582	484	1246	213
Forest Ave. at Congress Street	140	258	256	654	218
Oak Street at Congress Street	180	453	320	953	21

Casco Street at Congress Street	127	349	191	667	113
Preble Street at Congress Street	99	160	99	358	71
Elm Street at Congress Street	173	250	50	473	71
Temple Street at Congress Street	46	113	59	218	28
Pearl Street at Congress Street	54	76	116	246	70
Congress Street at State Street	60	28	74	162	19
Congress Street at High Street	32	264	147	443	34
Congress Street at Forest Ave.	43	102	59	204	66
Congress Street at Oak Street	40	86	52	178	3
Congress Street at Casco Street	57	133	117	307	110
Congress Street at Preble Street	70	96	90	256	51
Congress Street at Elm Street	73	149	50	272	99
Congress Street at Temple Street	41	72	37	150	28
Congress Street at Pearl Street	24	18	26	68	--
Pine Street at State Street	29	26	41	96	--
State Street at Pine Street	64	125	96	285	--
Free Street at High Street	13	66	88	167	2
Free Street at Center Street	37	104	65	206	105
Center Street at Free Street	57	140	81	278	47
Federal Street at Temple Street	83	176	112	371	66
Temple Street at Federal Street	63	152	104	319	40
Spring Street at Center Street	52	4	84	140	85
Center Street at Spring Street	24	58	44	126	51
Temple/Union/Free St. at Middle/Spring St.	24	118	57	199	69
Middle/Spring St. at Temple/Union St.	140	387	149	676	105

Source: Wilbur Smith Associates

Pedestrian Gap Study

The quality of the pedestrian experience is directly related to the perceived convenience and safety walking along and crossing streets. Crossing streets is particularly important. Excessive wait time and poor accommodations can result in reduced use and unsafe conditions. At mid-block or intersections without traffic signals, pedestrians rely on traffic stopping at marked crosswalks to cross the street. While vehicles are required by law to stop for pedestrians once they enter a marked crosswalk, many pedestrians do not step into the crosswalk until there is a

suitable gap in the traffic for their crossing. At intersections with traffic signals, the signal phasing creates the required gaps for safe crossings.

One measure of the quality of a non-signalized crossing is the length of gaps presented to the pedestrian within an hour. At these intersections, many pedestrians will wait until there is a sufficient gap to complete the entire crossing, not a sufficient gap to give the motorists enough time to locate and stop for the pedestrian in the crosswalk. The ability of the motorists to see pedestrians waiting to enter the crosswalk is critical to provide enough time to stop safely.

A Pedestrian Gap Analysis conducted at three locations. Two locations analyzed were at crosswalks at intersections without traffic signals, Temple Street/Free Street and State/Pine Street. The third location, between Elm and Preble Streets on Congress Street, is a mid-block location without a crosswalk between a short block with traffic signals at each end.

Temple/Fore Street

This location has a permanent crosswalk composed of brick located at the end of the pedestrian mall opposite Bagel Works. It is an important transition point between the Congress Street corridor and the Old Port. Many pedestrians (approximately half) choose to cross not at the crosswalk provided or at the Temple Street/Spring Street intersection but mid-block between the Temple/Middle Street intersection and the entrance to the Temple Street parking garage. This follows the flow of the Maine Way pedestrian mall sidewalk. In the AM period, this location had the highest number of total gaps, 171. The number of gaps decreased for the other two time periods with 112 total gaps for the Mid-day and 92 in the PM. This indicates a much more continuous traffic stream during the PM peak than AM peak hour or Mid-day periods. Far fewer gaps over 10 seconds and over 20 seconds were also provided in the afternoon.

Elm/Preble Street

This location is mid-block between two signalized intersections. The Preble Street intersection provides an exclusive pedestrian phase for crossings of Congress Street and Preble Street and an additional concurrent phase for crossing Preble Street when Congress Street traffic goes. A minimum number of gaps will be produced by the traffic signals at the two intersections. These can be either increased or decreased depending on the level of coordination between traffic signals at the locations. Pedestrians cross mid-block when crossing between Monument Square and the Portland Public Library and bank building. The data suggest fewer total gaps in the PM

period than AM but they are of lower quality (fewer gaps over 20 seconds). A much higher percentage and number of gaps are over 10 seconds in length.

State Street at Pine Street

This intersection and crosswalk location is just downstream of the State Street/Congress Street intersection. Several factors complicate this crossing for pedestrians. There is poor sight distance for pedestrians and vehicles on the north side of State Street due to the counterclockwise curve in the road, the Longfellow Square statue and landscaping. On the south side, the free right turning traffic from eastbound Congress Street to State Street has to yield/merge with State Street traffic and watch for pedestrians immediately following the merge location. The highest number of gaps at this location was during the Mid-day period, which also had the highest number of gaps over 10 seconds in length. The PM period had the fewest total gaps and the fewest gaps over 10 seconds.

Accident History

The assessment of existing safety conditions within the Downtown study area was based upon reported accident experience from the most recent available three-year period. Accident statistics were obtained from the MDOT for the period 1995-97. MDOT considers both a Critical Rate Factor of 1.0 or greater and the occurrence of eight accidents or more over a three-year period as a general guideline for identifying potential safety deficiencies.

According to intersection accident data three locations meet MDOT criteria for a High Accident Location. These locations include; Spring Street/Center Street, Spring Street/Temple Street, and Temple Street/Federal Street. Additionally, Congress Street/Franklin Arterial, Congress Street/Pearl Street, Congress Street/Elm Street, Congress Street/High Street, and Congress Street/State Street were included due the their high accident level. According to accident history on roadway segments, no locations meet the criteria for a High Accident Location, and accident frequency is low. Accordingly, no additional analyses will be conducted. The following details the intersection problem locations.

Congress Street/Franklin Arterial

Of the 34 reported accidents, 31 reports were on file at MDOT. In respect to yearly variation, 12 accidents were reported in 1995, 6 in 1996 and 13 in 1997. Of the 31 accidents, 13 were turning collisions, 10 were angle collisions, 3 were lane change or sideswipe accident, 2 involved pedestrians, and 3 were rear-end collisions. Weather conditions do not appear to have played a role in the accidents, as only three accidents occurred on wet pavement and 1 on snow covered pavement. Two issues were evident in reviewing the data. First, the majority of turning accidents involved vehicles turning from Congress Street onto Franklin Arterial in either direction. Secondly, while only two collisions involved pedestrians, the fact that they occurred is of concern.

Congress Street/Pearl Street

Of the 23 accident reports on file, 4 occurred in 1995, 7 in 1996, and 12 in 1997. Eighteen of the 23 accidents were angle collisions, 3 were rear-end accidents, 1 was a turning collision, and 1 involved a hit bicyclist. Weather was not a factor (one accident occurred on snow covered pavement). No specific pattern was evident relative to angle collisions (collisions involved vehicles on all approaches). The most common contributing factor was motorists disregarding the traffic signal. The one significant pattern discovered was that over twenty-five percent of the accidents occurred late at night (10:30PM+/-) when the traffic signal was operating in flash mode.

Congress Street/Pearl Street

Of the 13 accidents on file, 6 were reported in 1995, 3 in 1996, and 4 in 1997. Four of the 13 accidents were rear-end collisions, 3 were turning accidents, 3 involved pedestrians, two were sideswipe accidents, and one involved a backing accident. Of concern are the three pedestrian collisions. Review of the data indicates two accidents involved pedestrians crossing Elm Street and one involved a pedestrian crossing Congress Street on the east side. One of the Elm Street collisions occurred during a snowstorm when the "Don't Walk" signal was activated. The other Elm Street collision report had little information. The Congress Street crossing collision involved a pedestrian crossing during the "Don't Walk" signal and was inattentive in his attempt to cross the street.

Congress Street/High Street

Of the 31 accident reports on file, 11 occurred in 1995, 9 in 1996, and 11 in 1997. Fourteen accidents were rear-end collisions, 7 were lane change or sideswipe accident, 4 were angle collisions, 3 were single vehicle accidents, 2 were turning collisions, and 1 involved a hit pedestrian. Approximately 45 percent of the accidents occurred during dark or dusk light condition, indicating a possible problem with intersection illumination. Five of the accidents involved drivers who were physically impaired.

Congress Street/State Street

Of the 24 accident reports on file, 10 accidents occurred in 1995, 7 in 1996, and 7 in 1997. Seven of the 24 collisions were angle collisions, 6 were rear-end collisions, 5 were lane change/sideswipe collisions, and 5 involved pedestrians/bicyclists. Approximately 40 percent of the accidents occurred during dark condition, indicating a possible problem with intersection illumination. Six of the accidents, involved drivers who were physically impaired. Of great concern is the number of pedestrian collisions. The reports indicated that 1 involved a hit bicycle crossing State Street on the north side, 1 involved a hit wheel chair crossing State Street on the north side, 2 involved pedestrians crossing State Street on the south side on the "Don't Walk" signal, and one involved an intoxicated pedestrian crossing Congress Street on the west side.

Temple Street/Spring Street/Middle Street/Union Street

Of the 21 reported accidents, 8 occurred in 1997, 7 in 1996, and 6 in 1995. Fourteen collisions were angle type, 3 were lane change/sideswipe, 2 were rear-end collisions, 1 was a turning accident, and 1 involved a vehicle fire. Over 50 percent of the accidents occurred when the signal was operating in flash mode during the night.

Temple Street/Federal Street

Of the eight accident reports on file, 3 accidents occurred in 1996 and 5 in 1995. Of the eight accidents, 4 were angle collisions, 2 were rear-end collisions, and 2 were lane change/sideswipe collisions. No obvious pattern was evident.

Center Street/Spring Street

Of the 21 accident reports on file, 11 occurred in 1996 and 10 in 1995. The majority of accidents at this location were angle collisions. Six of the collisions involved motorists who were physically impaired. Four accidents occurred while the signal was operating in flash mode. Nine of the accidents occurred during the weekend (e.g. Saturday or Sunday).

Level of Service

To evaluate existing intersection operations, capacity analysis was performed at the study intersections for the 1998 Existing Design Hour volume conditions. Capacity and level of service computations were based upon the guidelines set forth in the 1994 update of the Highway Capacity Manual – "Special Report 209", published by the Transportation Research Board, National Research Council, Washington, D.C. Level of service output is provided with a "letter grade" between "A" and F" ("A" being the best and "F" the worst) and a delay estimate.

The existing AM, Mid-day, PM, and Saturday peak hour levels of service summaries at the study area intersections are shown in the following tables.

Existing Level of Service Summary
Signalized Intersections

Intersection	AM		MID-DAY		PM		SATURDAY	
	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)
Congress/Franklin	B	13.3	B	12.5	B	13.6	B	11.3
Congress/Pearl	B	10.2	B	9.1	B	10.7	B	10.0
Congress/Temple	B	7.8	B	8.6	B	9.0	B	8.2
Congress/Elm	F	*	C	15.4	F	*	D	31.3
Congress/Preble	B	14.7	B	13.0	B	11.9	B	11.0
Congress/Brown	A	2.8	A	2.6	A	2.8	A	2.6

Congress/Casco	B	8.4	B	8.0	B	8.6	B	7.6
Congress/Forest	E	41.5	E	48.0	E	51.1	F	*
Congress/High	F	*	F	*	D	26.8	F	*
Congress/State	C	16.5	C	15.3	C	15.3	C	15.1
Spring/Center	A	3.9	A	4.4	A	4.3	A	4.7
Spring/Middle	C	16.4	C	17.6	C	17.7	B	14.4

Existing Level of Service Summary
Unsignalized Intersections

Intersection	AM		MID-DAY		PM		SATURDAY	
	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)
Congress/Oak	A	3.6	A	4.3	A	3.8	A	3.3
Free/Center	B	6.3	A	4.6	B	5.5	N/a	N/a
Temple/Federal	B	7.4	B	7.3	C	14.5	B	5.6
Free/Brown	A	4.5	B	5.1	B	5.7	A	4.9
Free/Oak	A	4.0	A	4.8	B	5.3	A	4.6

As noted in the previous tables, most of the study area intersections currently operate at acceptable levels of service with few exceptions. A summary of the key findings is provided below.

Congress Street/Elm Street

This location currently operates poorly during peak periods. Left-turn movements onto Federal Street contribute to the operating deficiencies. Although not considered in the capacity analysis methodologies, parked vehicles on the northerly Congress Street curb between Elm Street and Preble Street, also impede westbound travel and contribute to problems at the intersection. Although not quantified in the analyses, the *Congress Street/Temple Street* intersection also

experiences congestion during peak periods. The congestion is caused by vehicular queues extending from the Congress Street/Elm Street intersection.

Congress Street/High Street

This location also operates poorly due largely to the heavy traffic volumes entering the intersection. Volumes on High Street are some of the highest in the City, and accordingly require significant green time.

Congress Street/Forest Avenue

Poor operating conditions at this location are directly related to the phasing requirements at the Congress Street/High Street intersections, and the proximity of High Street to Forest Avenue. Currently three phases are provided with one phase servicing Forest Avenue, one phase servicing Congress Street movements and one phase servicing eastbound Congress Street movement. This third phase in needed to ensure spillback into the High Street intersection is avoided. However, this condition creates an inefficient signal operation. Another factor contributing to congestion at this location is the spillback of vehicles from the High Street intersection into the Forest Avenue intersection. During some signal cycles, traffic is unable to proceed due to gridlock on westbound Congress Street between the intersections.

Parking

An inventory of existing on-street parking restrictions was performed within the study area. Curbside restrictions were field surveyed along Congress Street between High Street and Franklin Arterial, along Free Street, Temple Street, and most side streets. This information will be evaluated and a determination on altering the restrictions with the intent of increasing on-street parking will be performed.

III. EXISTING CONDITIONS STREETSCAPE

In his book Great Streets writer Allan B. Jacobs states a fascinating fact: in the United States, *roughly 25 to 35 percent of a city's developed land is likely to be in public rights-of-way*, or streets. This is an impressive statistic in itself, but if one considers that the streets are by far the most common place that public social interaction takes place within an urban environment, this number becomes even more meaningful. The development of the street system within the urban environment is crucial in many ways to the success of the city as defined by its citizens. Streets need to work on so many different levels: convenience, safety, economy, beauty, adaptability-- to name a few. If we can improve the quality of the street and make it meaningful at many different levels, we are improving the quality of a third of the entire city.

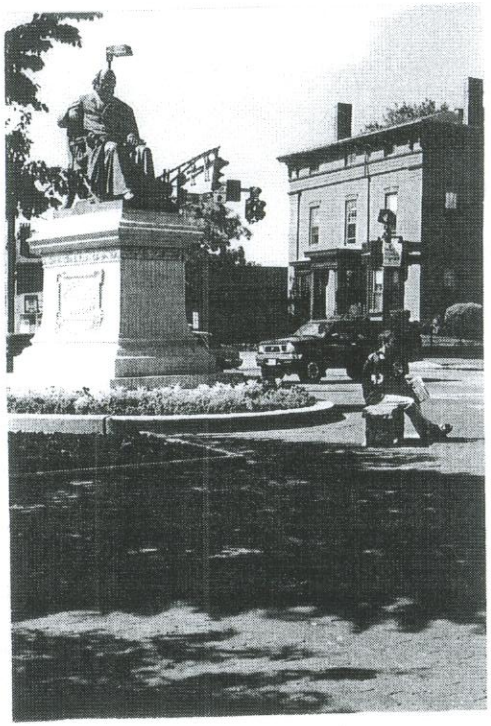
Analysis of the Structure of the Congress Street Corridor

The downtown streetscape of a city is made up of a multitude of overlapping textures. Vehicles and pedestrians weave within these textures, which add life to the streetscape. Street layout, street-level shops, building heights and facades, parking lots, vacant lots, paving materials, street furniture, street trees, open spaces, people and animals combine to create a signature that differentiates one city from another. When consumed together, these elements create a dizzying array of colors, patterns, noises and smells that make it difficult to understand the larger patterns that are at work within the streetscape that are contributing to its success or failure.

One way of discerning some of the patterns that are occurring at a larger scale is to separate the various textures into the types of spatial experiences that they form. Kevin Lynch, an urban planner, suggests the following categories: nodes, landmarks, paths, edges and districts. These broad categories are used in this study as a tool to better understand the "big picture" within downtown Portland's street environment. The value of this approach is that it helps to create a broad framework through which the specific elements begin to make sense.

Nodes

Nodes are areas of intense concentration of activity within a city or part of a city. They may be the focus of a larger area or district for which they stand as a symbol and over



which their influence radiates. They can be almost any size, but are always places into which one can physically enter. Often nodes occur where major transportation junctions are located. The simple act of pausing to make a decision causes many people to notice their surroundings with increased clarity. This phenomenon is present in Portland at several locations within the study area.

Several nodes were identified throughout the Congress Street corridor (fig. III-1):

Longfellow Square

Located at the intersection of Congress Street and State Street, this square includes a small plaza adjacent to the Longfellow Monument. The brick-paved plaza includes simple granite benches and low planters edged with wood. The plaza lacks a consistency of design and material quality. The durability of the granite benches are at odds with the relatively temporary quality of the wood-edged planters. The position of the benches relative to one another is not close enough to be socially engaging nor to engage the space of the plaza. The plantings (evergreen shrubs with ornamental flowering trees) act as a buffer between the plaza and the heavily trafficked State Street, but do not feel integrated with the plaza as a whole.

Congress Square

Located at the intersection of Congress Street and High Street, this square houses many important cultural and arts-related institutions, the most visible being the Portland Museum of Art. Across the square from the Museum of Art is a sunken, paved plaza used for outdoor performances as well as informal gathering. The tented ceiling over this plaza identifies and brings focus to the space, but the plaza is not heavily utilized by the general public when programmed uses (performances) are not occurring. Several places within the plaza have a sense of ownership by users who are street people. Circulation is awkward, the space can be noisy and there is a temporary feeling to many elements.

Maine Savings Bank Plaza

This privately-owned plaza, located on Congress Street between Casco and Brown Streets, is open to the general public. The space is elevated from the street and is separated by a large planted area. A series of curved metal benches flank either side of the path that cuts through the plaza. The plaza's elevated and screened qualities gives a sense of privacy to those inhabiting it and provides a comfortable perspective to Congress Street from within. The materials are of a high quality and seem to be well-maintained.

Framework For Understanding the Study Area

Nodes (and Associated Open Spaces)

- Points or Strategic Spots in the City
- Intense Foci
- Concentrations
- Places One Enters Into
- Nodes Can Act Like Landmarks

Nodes are the places people most often remember

Key

Node

Downtown Portland
Traffic & Streetscape Study
Portland, Maine

Richardson & Associates
Landscape Architects

0 150 300'

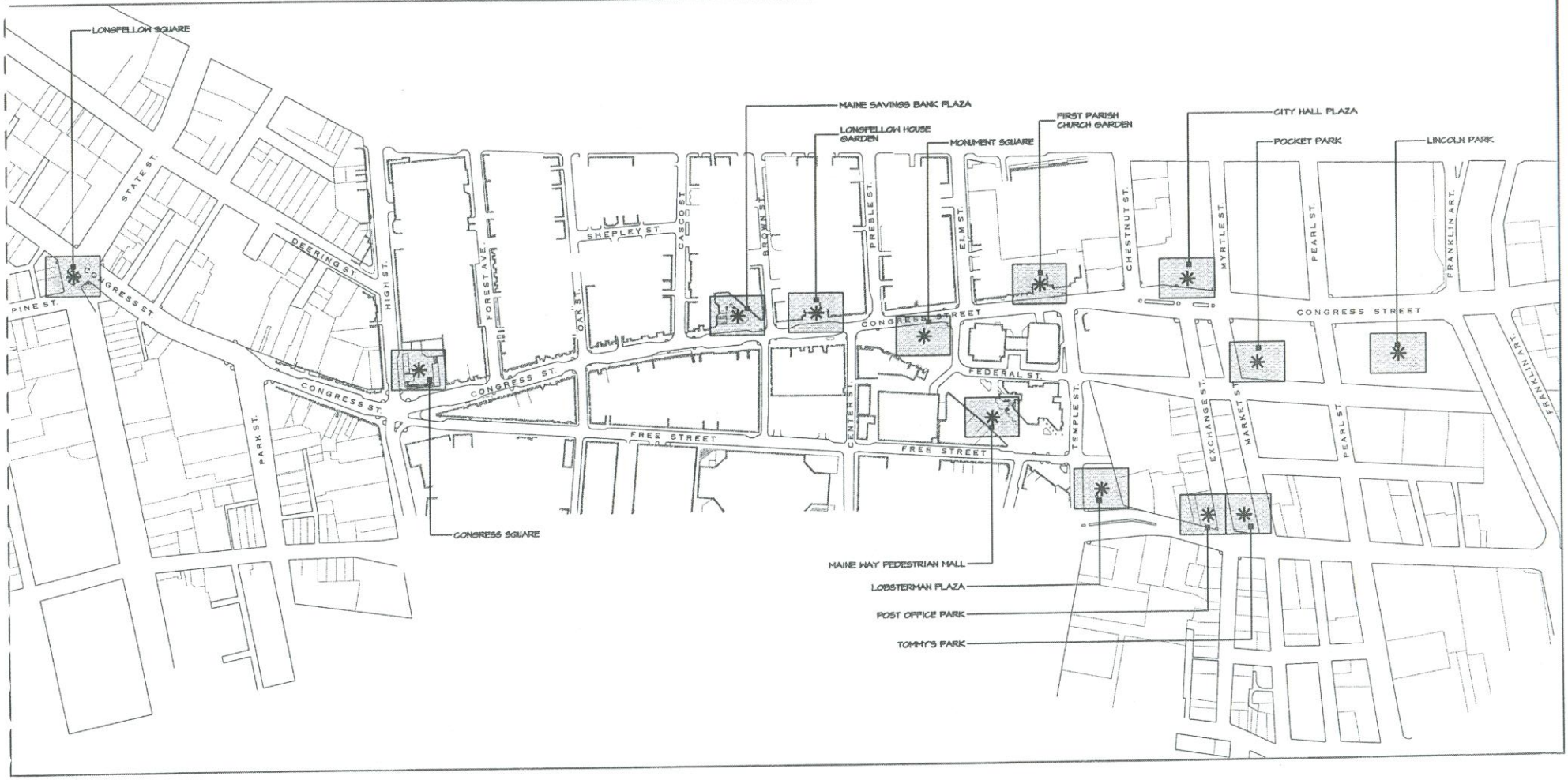
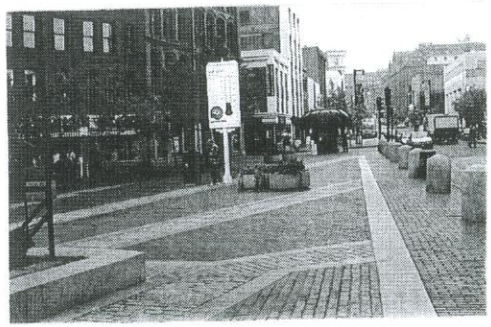


Figure III-1



Longfellow House Garden

Located directly behind the Henry Wadsworth Longfellow House, this historic private garden is completely hidden from Congress Street. This concealment gives the garden a "secret" feel; when inside, one is within an urban oasis where the noise and the light are heavily filtered. This space is one of the few outdoor spaces open to the public that is closed during certain times.

Monument Square

Located at the confluence of Congress Street with Preble Street, Elm Street, Federal Street and the MaineWay pedestrian mall, Monument Square is arguably the grandest public outdoor space in downtown Portland. The square hosts large outdoor gatherings for the greater Portland community. The Victory Monument, for which the square is named, is central to the plaza and impacts the circulation and the views both into and out of the space. The openness and expanse of paving is reminiscent of European squares, and seems most successful when filled with people. When empty, the scale of the plaza is challenged and circulation and inhabitation tends to occur at the perimeter rather than within. The location of pedestrian amenities around the perimeter of the space tends to reinforce this pattern.

MaineWay Pedestrian Mall

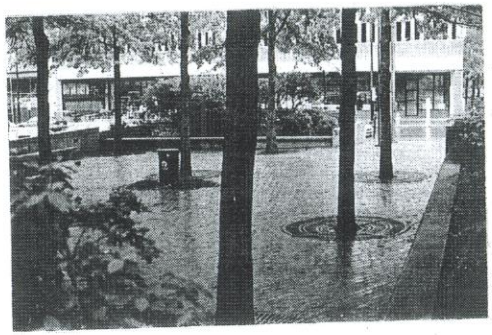
This pedestrian mall, which connects Monument Square with Temple Street and the Old Port, was designed and built in the early 1970's by Sasaki, Dawson and DeMay Associates. This space boasts more pedestrian amenities than any other within the study area, has an abundance of street trees, and allows automobile-free circulation among the merchants flanking the plaza.

Lobsterman Plaza

This brick and granite paved plaza is the lower terminus of the MaineWay pedestrian mall. Although marginalized by the architectural presence of the Nickelodeon Theater and adjacent parking garage, this space acts as the "joint" between the MaineWay pedestrian mall and the entrance to the Old Port District. The bronze statue of a lobsterman (the central focus of the plaza) is a much beloved piece of public art. The lack of canopy trees within the seating area makes the space feel somewhat exposed to the surrounding streets.

Post Office Park

This small park, located at the southwest corner of Middle and Exchange Streets, is very simply furnished with wood picnic tables, wood benches and a wood platform for performances. The space is surrounded by tall buildings on two sides, is under a somewhat dense canopy of trees and has little vegetation beneath. It is a place that offers a lot of shade



in the summer but suffers from lack of design quality. One interesting feature of the park is a tromp l'oeil mural painted on one building wall.

Tommy's Park

This park, located at the northwest corner of Middle and Exchange Streets, was recently built and features large, raised planting beds, a paved concourse, benches and boulders. The planting beds are heavily planted with a variety of trees and shrubs, an unusual sight within the downtown. It is very popular with Old Port residents and tourists alike because of the high quality of the design and materials.

Garden at First Parish Church

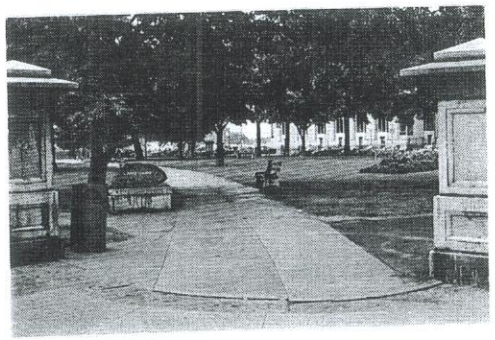
This small garden is similar in character to the garden at the Longfellow House. It is located adjacent to the First Parish Church on Congress Street between Elm and Chestnut Streets. It is situated behind an iron fence, raised from the level of the sidewalk, and partially screened with mature vegetation.

City Hall Plaza

This plaza is the forecourt to City Hall. Its materials and forms are neoclassical in style, to complement the architecture of City Hall. The plaza consists of large, built-in granite planters, stone urns and granite benches as well as some ornamental flowering trees. The overall feel of the space is very formal and is symbolic of civic pride.

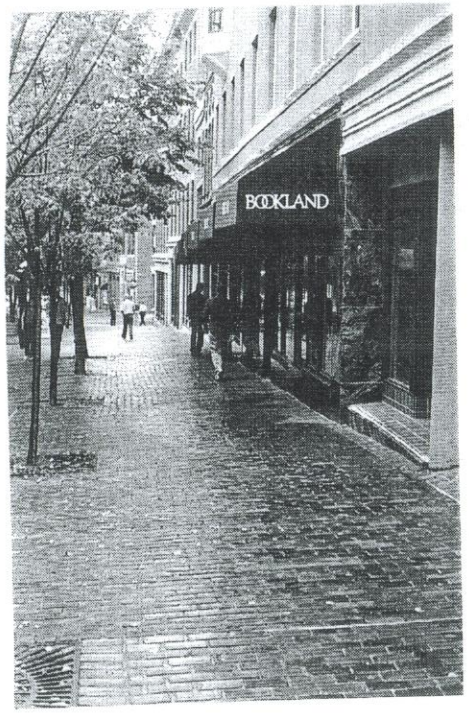
Pocket Park on Market Street

This small plaza is located on Market Street near Federal Street. It consists of brick paving with concrete benches built into the walls that surround the sunken plaza. The only other element is a grid of Pin Oaks, which are of a size sufficient to create a canopy over the space. It is a dark space when the trees are in leaf and the perimeter seating is not conducive to socializing. However the space is a shady, tranquil lunch time retreat in summer months.



Lincoln Park

This is the largest park within the study area. It is located at Congress Street between Pearl Street and Franklin Arterial. It is one of the oldest parks in the City and includes a series of paths and benches among a mature canopy of specimen trees. It features an ornamental granite fountain at the center of the Park. It is surrounded by a wrought iron fence. Although constructed of quality materials, some elements are in need of restoration.



Summary

Although the nodes are well dispersed throughout the study area they are located far enough apart that the "pulling effect" of one node on another is not strong. There is a healthy diversity of size, degree of public/private feel and range of uses accommodated. Many of the nodes are recognizable more for the landmarks within them than by their name, and many nodes are themselves landmarks. People recognize these spaces by their geographic location and by the events that are associated with them.

Some nodes are introverted, others extroverted. The Maine Savings Bank Plaza is an introverted node, intended to provide a refuge from nearby Congress Street. Introverted nodes tend to be associated with stopping, or gathering. Monument Square is an extroverted node. Its lack of boundary and the visual interest of the surrounding buildings and streets causes one to focus outward from the space. Extroverted nodes tend to be associated with redirection and orientation. A healthy streetscape is one that provides both types of nodes.

Paths

Paths are channels along which pedestrians and vehicles customarily, occasionally or potentially travel into and through the city. They are important to the city fabric since they connect its various parts. Where major paths lack identity, the city image falters. Paths with clear origins and destinations tend to have stronger identities, as do those with strong edges. Obstacles to traffic can often clarify a path system, and Portland is certainly a case in point. The geography of the peninsula, bounded by water on three sides and topographically defined by a central ridge, creates a logical hierarchy of paths within the downtown.

Congress Street is the longest path within the study area. Because of its location running the length of the peninsula along its ridge, it acts as a spine or corridor within the downtown into which many secondary paths enter. It is also one of the least consistent paths in terms of quality. The strength of the path increases and diminishes several times along its length from Longfellow Square to Franklin Arterial. Congress Street seems to be strongest as a path when it intersects with a nearby node and when the street is reinforced by consistent building edges on both sides. It is fed by major paths at many locations, and these intersections tend to be where nodes occur. Examples of this are at Longfellow Square (Congress / State), Congress Square (Congress / High), and Monument Square (Congress / MaineWay).

High quality paths tend to include a variety of pedestrian amenities (benches, street trees, pedestrian-scaled light fixtures) and are reinforced by quality storefronts. Low quality paths seem to have few or no pedestrian amenities and lack quality storefronts. Some paths of lower quality are able to attract a large volume of pedestrian traffic because of the strength of the nodes at either end. An example of this is on Congress Street between Congress Square and Monument Square.

The paths identified by regular users (pedestrians) seem to be different from those identified by tourists or infrequent users. There are many "shortcuts" used by commuters, such as the path between Elm and Chestnut Streets adjacent to Portland High School and the Elm Street parking garage. Free Street is a path that is used by regular users to cut from Congress Square to the Old Port, but the lack of quality along this path discourages use by those unfamiliar with the City.

Summary

The streets within the study area have been designated as paths of high, medium or low quality (fig. III-2):

High Quality: Congress Street between Congress Square and Monument Square
Temple Street at Middle Street

Medium Quality: MaineWay pedestrian mall
Congress Street between Longfellow Square and Congress Square
Congress Street between Monument Square and City Hall

Low Quality: Congress Street between City Hall and Franklin Arterial

Edges

Edges are linear breaks in continuity across the urban fabric. They are dividers that hold together general areas within the city. Edges take on different forms and qualities (buildings and water can both form edges) and sometimes act dually as paths. The strongest edges are those created by a series of tall buildings on both sides of a fairly narrow street. If a building steps back to allow for open space (such as a pocket park) the edge may continue along the building on the back side of the open space. Edges are

Framework For Understanding the Study Area

Paths

- Channels Along which the Observer Customarily, Occasionally, or Potentially Travels
- Paths are Important Simply Because of their Function
- Where Major Paths Lack Identity, the City Image Falters
- Paths with Clear Origins and Destinations Have Stronger Identities

Paths are the means by which many people come to understand the City

Key

- High Quality Path
- Medium Quality Path
- Low Quality Path
- Other Interesting Paths

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Traffic & Streetscape Study
Portland, Maine

Richardson & Associates
Landscape Architects

0 150' 300'

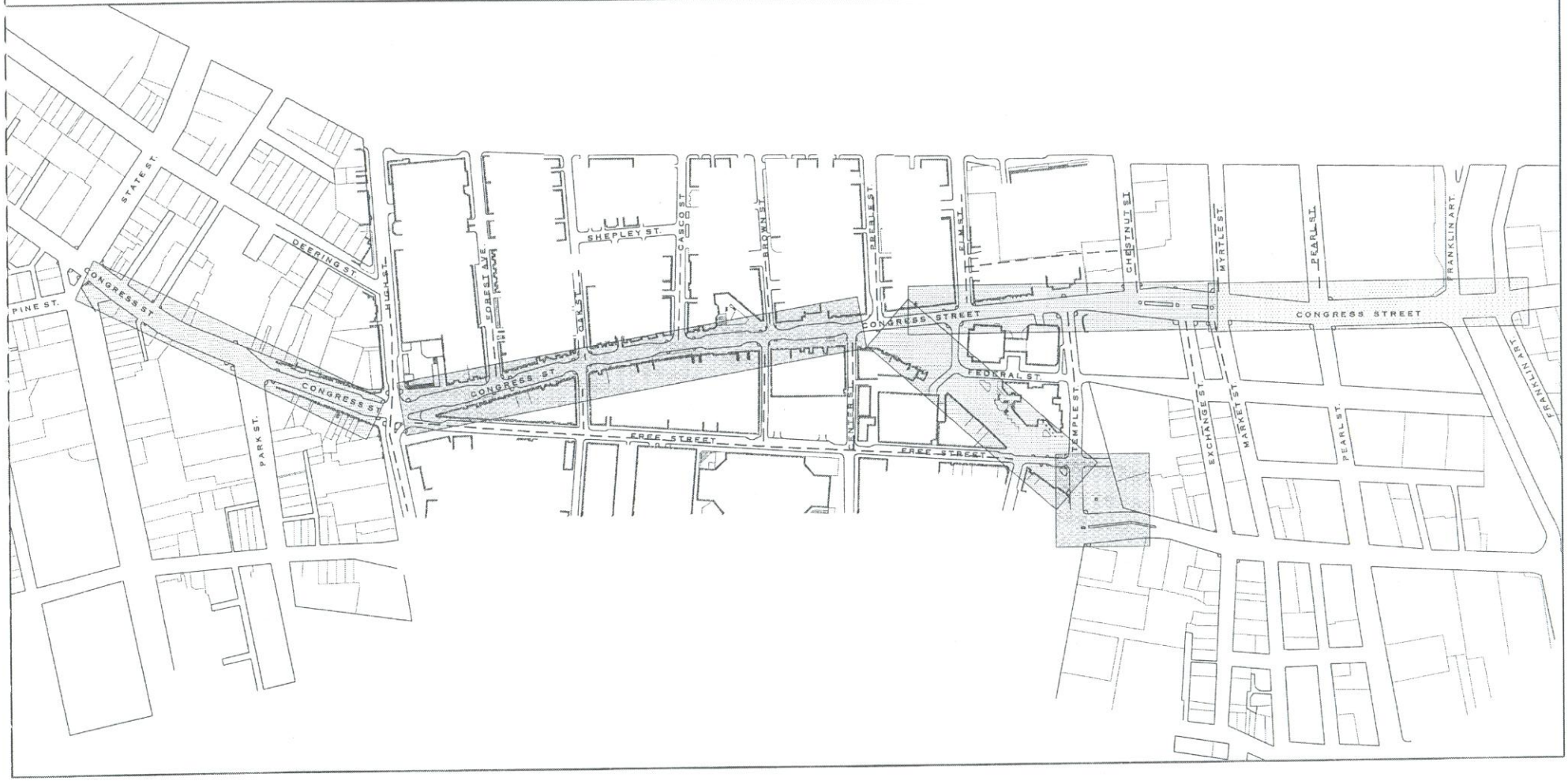

Figure III-2

important in their ability to define space and encourage movement within defined corridors, but they can also cause disorientation in those unfamiliar with the city.

Two types of edges were identified on the analysis map (fig. III-3): street edges and building edges. Street edges are busy streets that cross, but do not terminate at, another busy street. Building edges are impermeable barriers caused by buildings adjacent to the street. State Street, High Street, Temple Street and Franklin Arterial are examples of street edges along Congress Street. Building edges occur throughout the study area.

Summary

The edge along Congress Street between Longfellow Square and City Hall is strong enough so that many of the side streets that enter Congress Street do so almost imperceptibly. Exceptions to this are wider streets such as State Street and High Street. The edge quality is almost nonexistent along Congress Street between City Hall and Franklin Arterial, due mainly to the lack of buildings along this part of the corridor. Topography informs both edges and paths and affects movement. (An example of this is at the MaineWay pedestrian mall, which slopes from Monument Square down to Temple Street. The slope naturally forces a perspective view from one end of the mall to the other.) Edges both divide and unite by focusing or discouraging movement along a path or from one path to another.

Districts

Districts are sections of the city defined by recognizable, common, identifiable characteristics. All districts are identifiable from the inside and some from the outside. They have value and importance in many ways including perceived increased diversity, marketability, and ease of orientation within the downtown. A district might be a way to attract first-time visitors to a particular selling point of the city, hoping that they will then discover how much the rest of the city has to offer. Districts and paths tend to be the dominant methods by which people structure a city.

There are three districts which are currently designated within the study area (fig. III-4). Two identified by the Portland Downtown District are the Arts District and the Old Port district. The third is the Historic District defined by the City of Portland.

Framework For Understanding the Study Area

Districts

- Sections of the City defined by recognizable, common, identifiable characteristics
- One Can Enter Inside a District
- A District Can be an External Reference Point

Districts are defined both by physical characteristics and related uses

Key

District

Downtown Portland
Traffic & Streetscape Study
Portland, Maine

Richardson & Associates
Landscape Architects

0 150 300

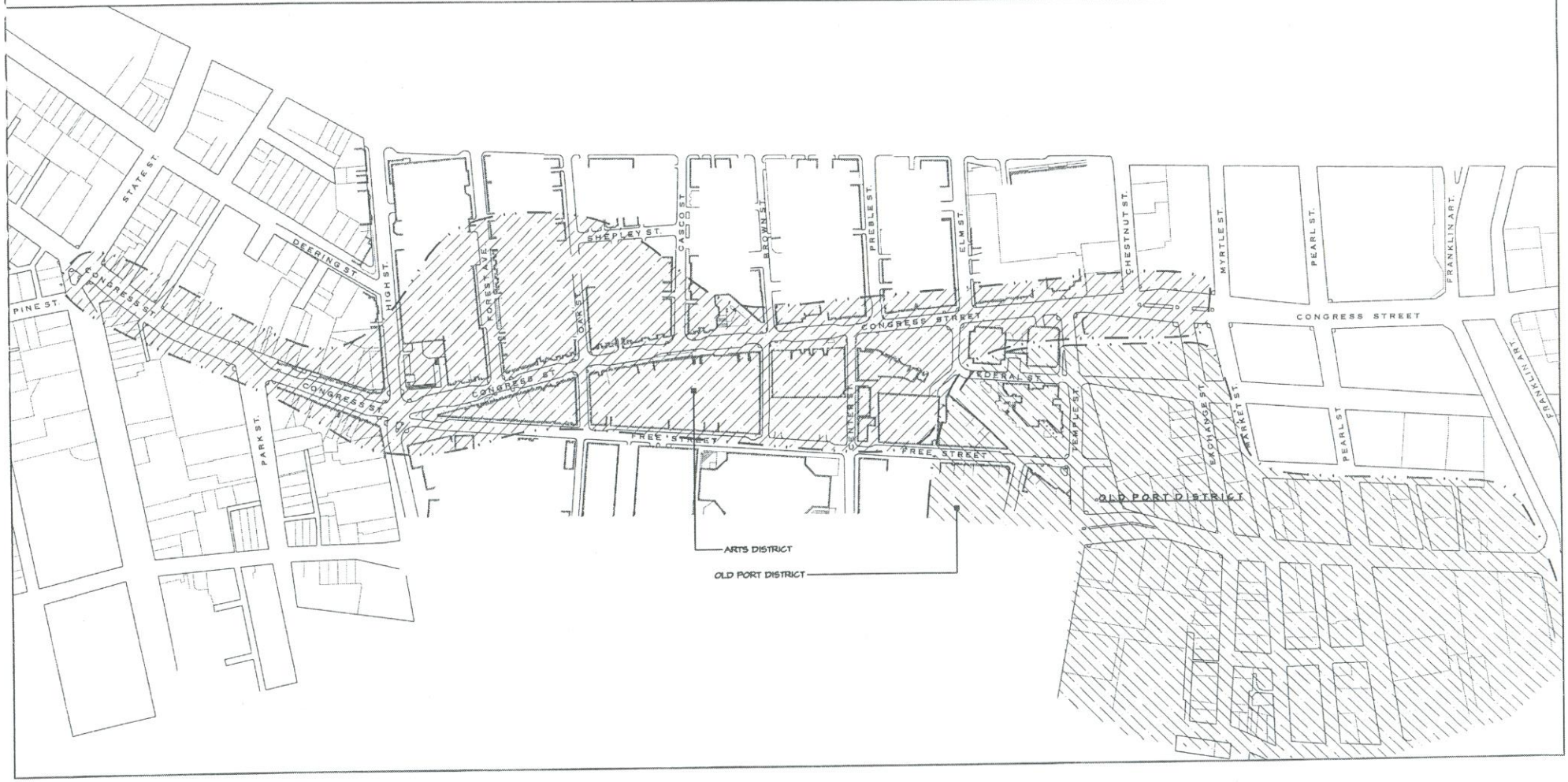

Figure III-4

Framework For Understanding the Study Area

Edges

- Linear Breaks in Continuity
- Hold Together General Areas within the City
- Act as Lateral References
- Edges Take on Different Forms and Qualities
- Edges Sometimes Act as Paths

Edges are the key defining elements of areas/districts within the fabric of the City

Key

|||||	Street Edges	*Busy streets that cross a busy street (not those that feed into it)*
▬ ▬ ▬	Building Edges	*Impermeable barriers caused by buildings*

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Traffic & Streetscape Study
Portland, Maine

Richardson & Associates
Landscape Architects

0 150 300

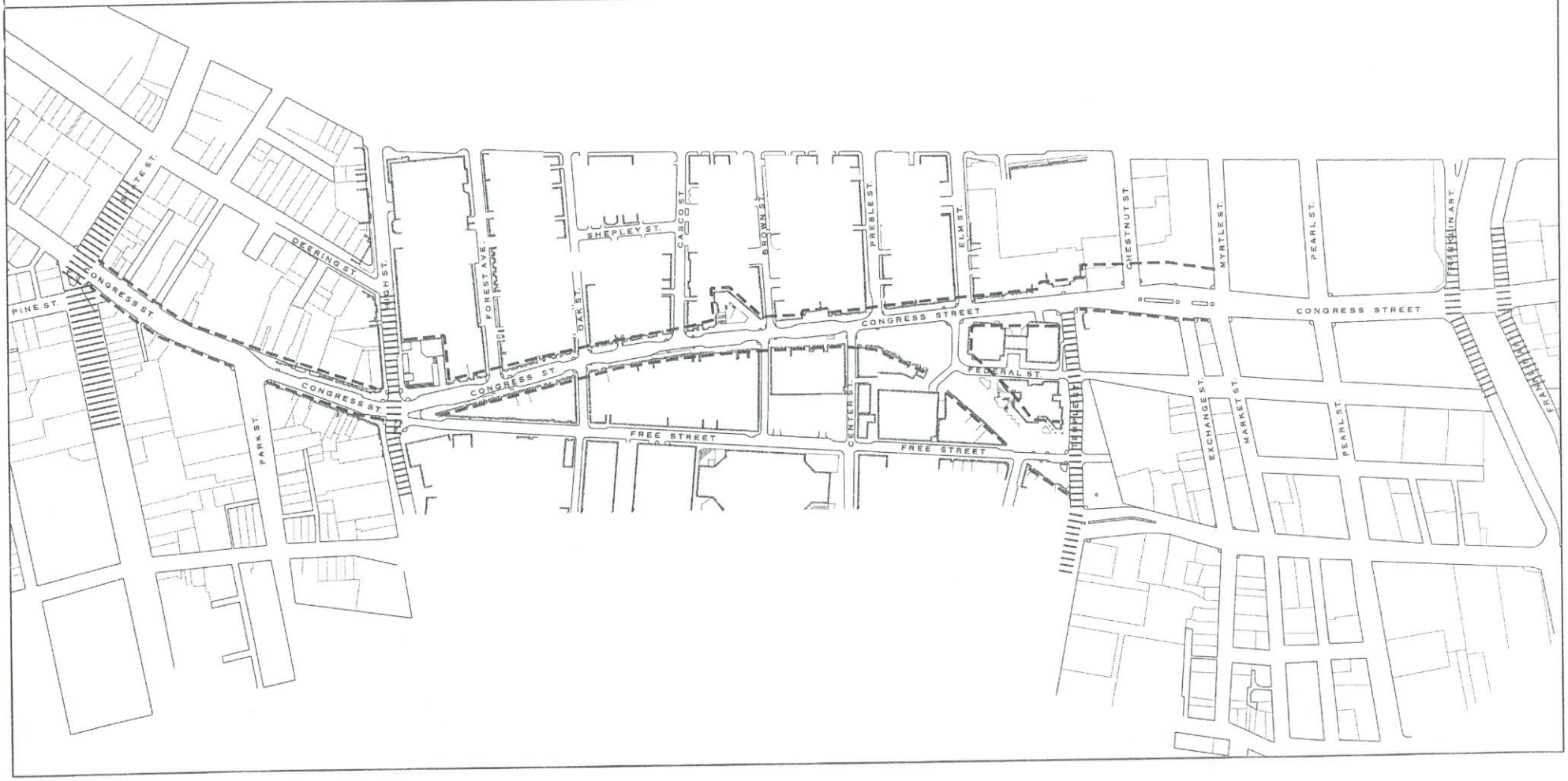


Figure III-3

An important issue discussed by the Advisory Committee was that of district identity. The way that districts have been designated in downtown Portland is either by geographic area (the Old Port) or by a recognizable common characteristic or purpose (the Arts District and Historic District). Districts designated by geographic area, like the Old Port, tend to be destinations for visitors because they are very easy to recognize and navigate. Districts designated by common characteristic, if the individual buildings that make up the district are not in geographic proximity to one another, present more of a challenge to visitors not familiar with the downtown.

Landmarks

Landmarks are external points of reference within a city. External implies that they cannot be entered or inhabited, but some buildings may achieve landmark status if used primarily as a point of reference. Landmarks are objects that someone might use in giving directions to an out-of-town visitor. They are one of the first tools that the mind uses when learning how to get around a city. Many landmarks are never known by their proper name, but are nonetheless used by pedestrians to orient themselves within the downtown.

Landmarks include monuments, sculptures, murals, buildings, site amenities (clocks, kiosks), and open spaces. The variety of types and scales of landmarks add richness to the pedestrian environment and invariably strengthen the paths, edges, districts and nodes that they are part of. The study area includes both historic and contemporary landmarks that are well distributed geographically and by type and scale (fig. III-5).

Identified landmarks are:

Longfellow Monument
Victory Monument
Maine College of Art
Portland Public Library
Clock @ Monument Square
Lobsterman Statue
Portland City Hall
Baxter Library
Hay Building

Union Station Clock / Congress Square Tent
Portland Museum of Art
Portland Public Market
First Parish Church
'Michael' Sculpture
Bagel Works building
Fireman Statue
Children's Museum of Maine

Framework For Understanding the Study Area

Landmarks

- Points of Reference - Physical Objects Which are External to the Observer

Landmarks are Integral to the Legibility of the City

Key

Landmark

Downtown Portland
Traffic & Streetscape Study
Portland, Maine

Richardson & Associates
Landscape Architects

0 150' 300'

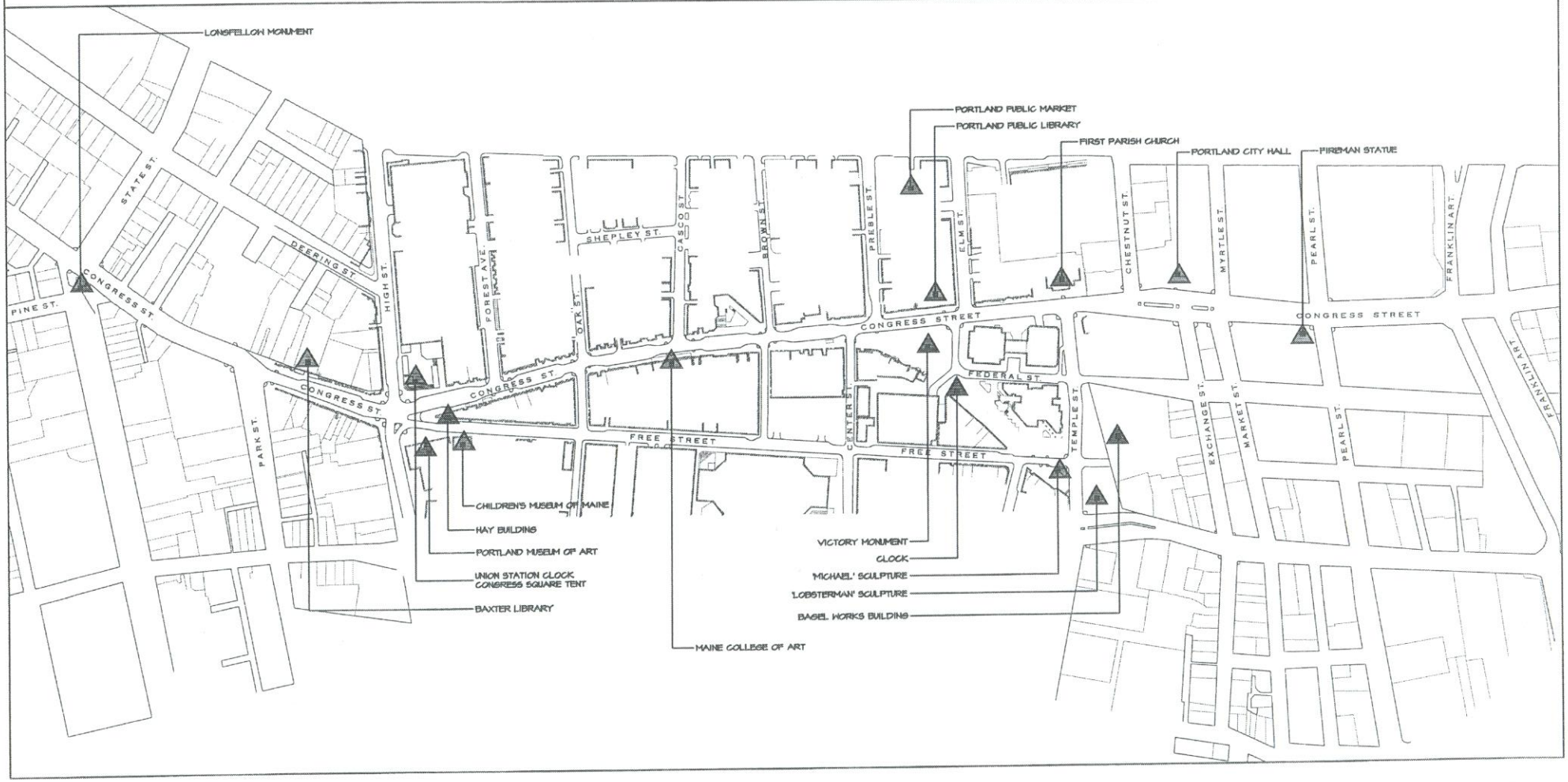


Figure III-5

Summary

It is difficult to isolate the five identifiers (node, path, edge, district and landmark) and not begin to see ambiguities emerge that force a place to cross the boundary from one into another. Paths are often created as a result of strong edges or strong nodes, nodes often help define districts, districts are strengthened by landmarks which help identify their location, and landmarks and nodes are often used interchangeably to describe a place.

The combined sum of the five identifiers help to create nine identifiable sections within the study area (fig. III-6). The boundaries of each section are far from precise. However, this division into sections introduces the relationship of the parts-to-the-whole that will be further explored in the study recommendations.

Section A:	Longfellow Square
Section B:	Congress Street between Longfellow Square and Congress Square
Section C:	Congress Square
Section D:	Congress Street between Congress Square and Monument Square
Section E:	Monument Square
Section F:	Congress Street between Monument Square and Franklin Arterial
Section G:	MaineWay pedestrian mall
Section H:	Temple Street between Federal Street and Middle Street
Section I:	Middle Street between Temple Street and Exchange Street

One reason for the division of the study area into the above sections is due to the strength of the node-path relationships within the downtown area. The existence of strong node-landmark combinations joined with well-defined, understood paths results in a strong framework within which to provide recommendations. The structure can aid in developing an implementation plan which "phases in" recommendations in a more gradual, but sequential, way. The role of the nodes-landmarks is critical, in that they seem to act as "magnets", pulling pedestrians from one area to the next even when the path associations are not as strong. The concept of a node-path relationship is often used in the design of shopping malls, using large, popular "anchor stores" at the end of a line of smaller stores in order to encourage shoppers to interact with the smaller stores.

SUMMARY: IDENTIFIABLE SECTIONS OF THE STUDY AREA

DOWNTOWN PORTLAND
TRAFFIC & STREETSCAPE STUDY
PORTLAND, MAINE

RICHARDSON & ASSOCIATES
LANDSCAPE ARCHITECTS

0 150 300

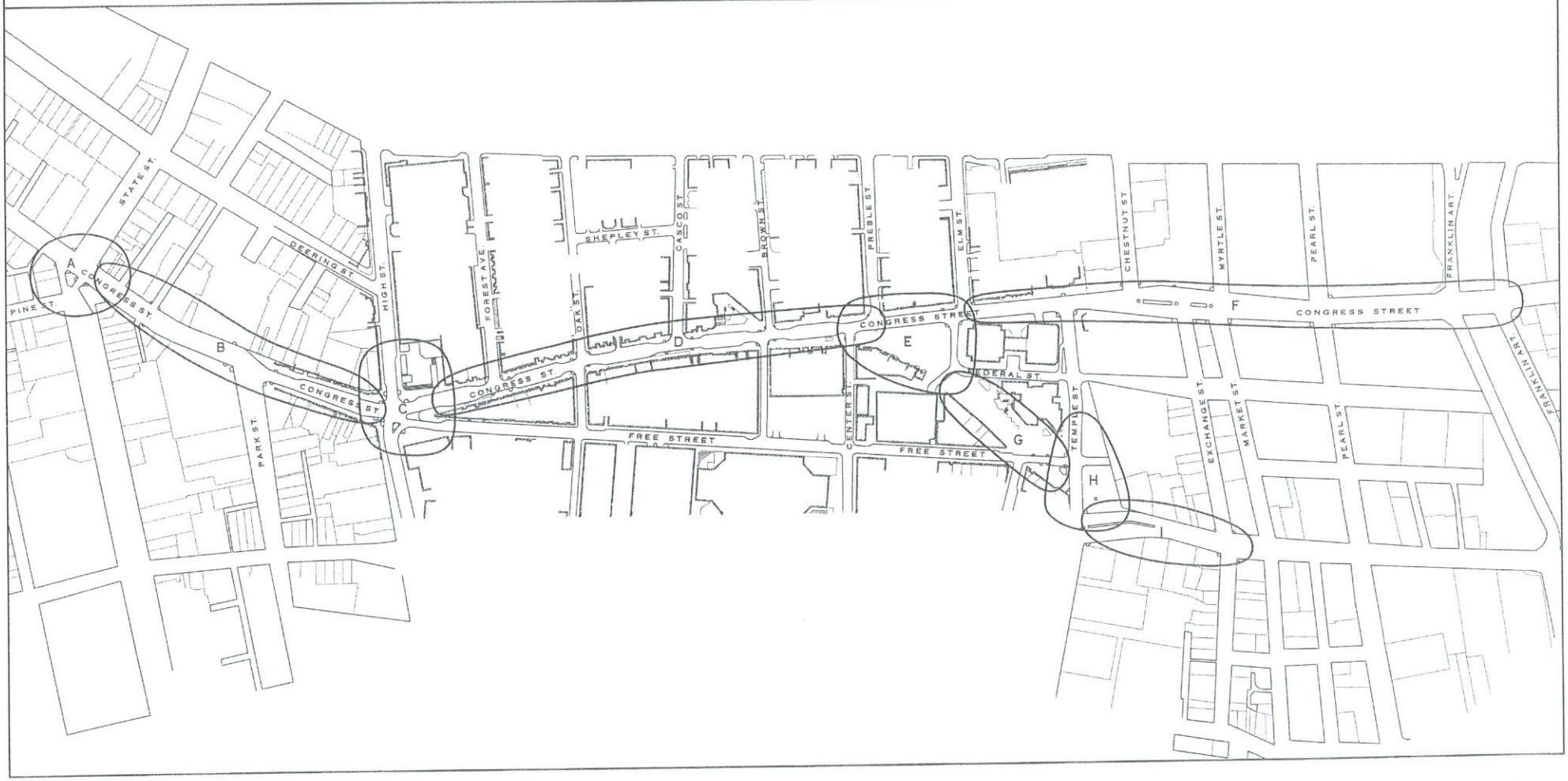


Figure III-6

Analysis of Streetscape Elements

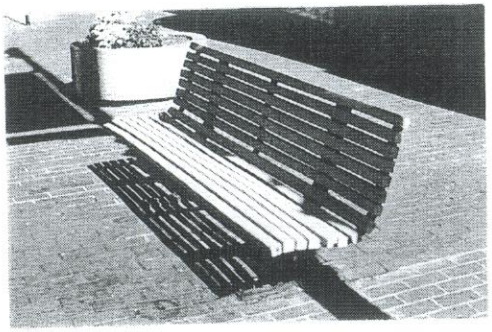
The previous section outlined a framework within which recommendations can be made to improve the structure of the downtown streetscape as a whole. Now that this framework has been established, we can focus on the individual elements that contribute to the larger picture. As stated in the introduction to the previous section, the quality of the streets within a downtown depends on a number of factors. Many of these factors (architectural quality, zoning, economic health of the region) are beyond the scope of this study. For our analysis of streetscape elements, we are primarily concerned with the changes that can be implemented in the space between a building face or edge of sidewalk and the edge of the curb. While it goes without saying that the best looking bench won't turn a downtown around all by itself, often times it is at the smallest scale of the individual element that true change begins.

In this study streetscape elements include site furniture (benches, planters, etc.), site lighting, street trees and street surfacing (crosswalks, paving). An inventory was made of streetscape elements currently located within the Congress Street corridor. This inventory was used to analyze both the quantity and quality of the existing streetscape elements in order to provide recommendations that will work within the larger framework discussed in the previous section. Streetscape elements provide an important visual and often functional layer to the life of the street. They cannot single-handedly improve a downtown, but are one of the first things that first-time visitors will notice. Unfortunately, poor quality elements are often more obvious and leave a lasting impression.

Each of the following streetscape element types was counted and stylistic variations within each amenity were noted. (Detailed inventory plans and a pictorial index can be found in the Technical Memorandum.) Unless particularly notable, only publicly-owned amenities were inventoried.

Lighting

Lighting within the urban pedestrian environment is important on many levels. At the most basic level lighting provides safe circulation during periods of low light. It can also help create identity and legibility within a space or a series of spaces by encouraging activity and circulation in one area while discouraging it in another. It is important that properly scaled light fixtures be provided in areas where pedestrian movement is welcome. The style of the fixture is also important as it relates to other amenities within a space.



Fixture types vary throughout the study area. 'Cobra head' and 'box' type streetlights, which have a decidedly "vehicular" quality, are located on the fringes of the study area: near City Hall and Franklin Arterial, Longfellow Square, and Middle Street at Temple Street. A new custom-type streetlight manufactured by Halophane has been installed on Congress Street from Congress Square to Monument Square. This fixture offers some flexibility in that it has both an upper lamp for vehicular-level illumination and two lower lamps for illumination at the pedestrian level. The fixtures that have been installed are the first phase of a more extensive implementation plan.

Pedestrian-scaled lighting is located primarily at Longfellow Square and at the MaineWay pedestrian mall. The 'Town and Country' post light is almost exclusively used for this purpose. This fixture, popular twenty-five years ago, is now somewhat dated in appearance and in need of replacement. The type of lamp used (high pressure sodium), while economical, has very poor color (yellow-orange). A metal halide or mercury vapor lamp might yield superior results without greatly compromising efficiency. The light fixtures at the pedestrian mall, although the proper height, are located in the middle of the allée of Linden trees where few people circulate.

Benches

Benches are possibly the most over-worked of all site furnishings. They provide a place for pausing and socialization to occur at the street level, as well as add visual interest when properly located. They are occasionally the target of vandalism and are sometimes blamed for encouraging loitering by undesirable people. When well designed and sited they provide a comfortable and durable amenity. When poorly designed or sited they become much more obvious than when they are successful.

The overall quality and placement of benches within the study area is poor. The bench type almost exclusively used is a wood bench, painted gray, with square slats bolted to a simple metal frame. The frame can be anchored to the sidewalk. The overall appearance of the bench lacks character. Its color, unbroken length and lack of armrests encourages people to sleep on it. At many locations two benches of this type are placed back to back, a space-saving alternative which is also socially awkward. A more attractive variation on this type of bench is the Catamount bench found along Temple Street near Bagel Works. This is a more historic wood bench with a higher quality cast iron frame.

Trash Receptacles

Trash receptacles are seldom noticed until you are looking for one or until they are poorly maintained. Manufacturers of site furniture are looking increasingly at trash receptacles as a complement to other site furnishings like benches and drinking fountains. This interest has resulted in a better selection of trash receptacles, as well as trash receptacles that provide other functions (such as cigarette ash disposal and recycling).

Only one type of trash receptacle was observed within the study area. It is a black painted, metal cylinder with side openings and a flat top. The words "Please Keep Portland Clean" have been applied to the side of the receptacle. The receptacle can be anchored to the sidewalk. The high contrast appearance of the white lettering on the black cylinder makes the presence of the receptacles greater than they need to be. The flat top keeps rain from entering the receptacle but also encourages waste to be placed on top, rather than within. The receptacles seem to be well-maintained and well-located throughout the study area.

Curb Ramps

The Americans with Disabilities Act (ADA) requires that all accessible routes crossing a curb be furnished with a curb ramp. The only design requirements are that the ramp have a "detectable warning" and be slip-resistant. A detectable warning is a raised, textured surface extending the width of the ramp. Curb ramps which use contrasting materials, such as brick and concrete, tend to be more visible than those which use a single material. Curb ramps were furnished at almost all required intersections within the study area. An exception is on Congress Street at Franklin Arterial, one of the busiest intersections in the Downtown area. Curb ramp types within an intersection often lacked a consistent design vocabulary, with a different style used on one end of the crosswalk than at the other.

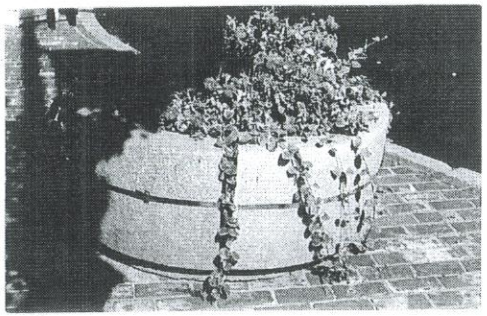
Tree Pits

A tree pit is the volume of amended soil into which the root ball of a tree is placed when it is planted. The design and maintenance of a tree pit is one of the most important factors in the health of a street tree. The pit must be large enough to promote adequate space for root growth, to allow water to enter the pit and to allow aeration of the soil. The visible portion of the tree pit is usually where a tree receives the bulk of its air, water and nutrient requirements. This exposed portion, when placed near a pedestrian or vehicular thoroughfare, is subject to compaction, dehydration and vandalism. Tree grates, when

installed properly, help reduce compaction of the soil above the root ball and encourage aeration. Tree pits and grates should be considered within the larger stylistic vocabulary of street furnishings as one more opportunity to give identity to the pedestrian streetscape.

The majority of street trees within the study area use metal tree grates as a way of protecting the pit. In some cases the tree grates have been pushed up by expanding roots or tree trunk flare. However, the majority of the tree grates are in good shape. Other methods of treating the tree pit are bark mulch with a cobble, concrete or brick border, or cobble throughout. A few tree pits are not edged, but are mulched. This alternative, while cost effective, can be messy in high traffic areas.

Planters



Planters contribute color and texture to the street level, as well as provide a cool contrast to the heat-radiating sidewalks and building facades in the summer. They are one of the most important yet time-consuming streetscape elements to maintain. One of the greatest benefits of planters is the ability to vary their contents to provide a seasonal element within the streetscape environment.

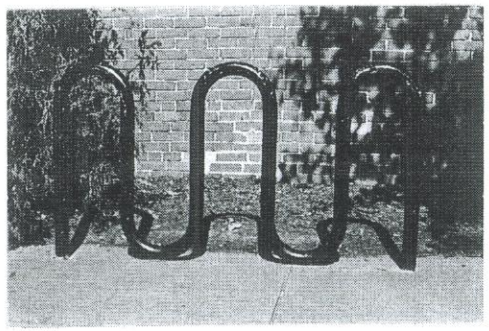
Only one type of stand-alone planter was observed. The planter is a large, round, granite unit that is planted with annuals by the Portland Downtown District. It is located throughout the study area and is typically clustered in groups of two or three. The planters appear most frequently at Congress Square, Monument Square and the MaineWay pedestrian mall. The placement of the planters in relation to the sidewalk is not uniform and in some cases the clusters restrict circulation. The annuals bring color to the streetscape but there does not seem to be an overall theme or themes to the plant palette.

Crosswalks

Crosswalks should be required between all curb ramps and should be easily visible for both motorists and pedestrians. Crosswalks are present at most crossing areas within the study area and are relatively consistent in their style within a group of curb ramps . The majority of crosswalks are painted, white stripes. This is the cheapest short-term solution and the least disruptive to implement. However, the paint must be reapplied often in order to maintain its visibility.

Two other types of crosswalks observed within the study area are brick with granite edging and granite cobble with granite flagging. These treatments are more expensive to install but have a much longer life span. The granite and the brick can have the tendency to heave at different rates from the surrounding asphalt, causing a higher degree of maintenance. The non-uniform surface of the granite cobble crosswalk is very difficult to walk upon, and many people were observed walking directly to either side of the crosswalk.

Bicycle Storage



Bicycle storage is an important streetscape element when encouraging commuters and visitors to explore non-motorized transportation alternatives. Bicycle storage furnishings include the traditional bike rack, as well as the bike locker which allows a bicycle to be locked within an enclosing fiberglass cover.

Bike racks were located at a few locations within the study area, but did not appear to be heavily used. The two bike lockers, which are currently being tested as prototypes, are located near the bus stop at Monument Square and near the Elm Street parking garage. Both lack signs identifying their purpose, and did not appear to be in use during the time that the observations occurred.

Street Trees

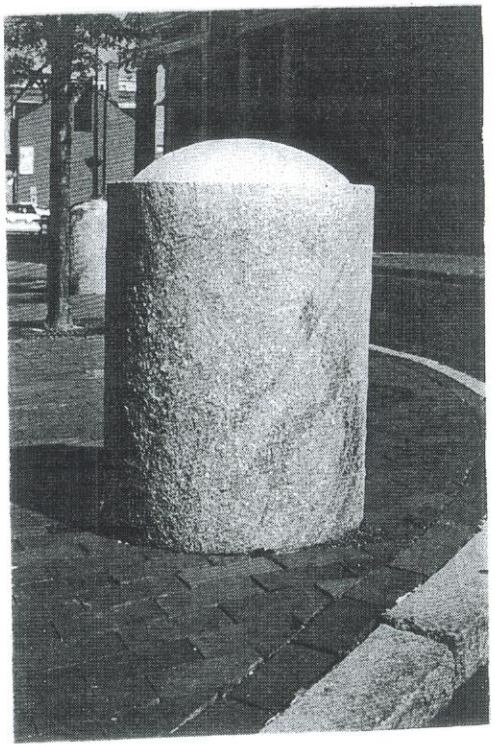
A Downtown District Tree Survey was performed by the City of Portland in the winter of 1995. This inventory lists each tree by species and condition. This survey combined with the consultants' field notes were used to map tree species locations and conditions on inventory maps. The following tree types were observed within the study area:

1. Littleleaf Linden (*Tilia cordata*)
2. Cherry (*Prunus spp.*)
3. Honeylocust (*Gleditsia triacanthos var. inermis*)
4. Elm (*Ulmus*)
5. Pear (*Pyrus calleryana*)
6. Pin Oak (*Quercus palustris*)
7. Maple (*Acer spp.*)
8. Paper Birch (*Betula papyrifera*) Observed in large planter at Portland Museum of Art
9. Japanese Tree Lilac (*Syringa reticulata*)

Therefore, much of the maintenance of trees (excluding those in parks or plazas) must occur after hours.

Other Streetscape Elements

Bollards



Granite bollards are used to discourage vehicles from entering large paved areas. They are primarily located at Congress and Monument Squares and at the MaineWay pedestrian mall. They are of a high design quality and are appropriately scaled for both pedestrians and motorists.

Newspaper Boxes

Newspaper vending boxes are located throughout the study area. Coin-operated and free-opening varieties are both common. They are placed both singularly and in clusters, and are not consistently located in relation to other amenities. They are sometimes located in conflict with pedestrian circulation. In some cases the boxes have been chained to light posts, a visually unappealing solution. They seem to act as magnets for stickers, and the free-opening boxes have the potential to generate trash in the vicinity of the box.

Public Telephones

The only location where telephones are readily visible is at the "mushroom kiosk" at Monument Square. The kiosk holds several pay telephones which are protected from rain by the overhanging roof. This location offers much visibility to and from the telephones, an important safety feature for the pedestrian. The most obvious criticism is that there are not more outdoor public telephones within the downtown area.

Public Art

There is a diversity of public artwork within the downtown area. The art is well-distributed throughout the study area and there is a variety of type, material and style (both historic and contemporary). Public art is central to many of the successful open spaces within the downtown area, including Longfellow Square, Congress Square, Monument Square, Post Office Park, and the plaza in front of the Nickelodeon Theater. Some pieces have taken on the role of landmarks in their importance. Others are discovered only after several visits to a place.

The existence of street trees is inconsistent throughout the study area. Trees occur fairly consistently along Congress Street between Longfellow and Congress Square, at Monument Square and the MaineWay pedestrian mall, and along Middle Street between Temple and Exchange Streets. Trees are planted very sparsely on Congress Street between Congress and Monument Squares, and between Monument Square and Franklin Arterial. There has been an attempt by the City to replace any dead or missing tree within the Portland Downtown District within one season of its demise.

Linden is by far the most commonly planted tree. It appears frequently along Congress Street and is used exclusively at the MaineWay pedestrian mall. It is one of the species most tolerant of urban conditions (salt, heat, drought, pollution) and matures into a rounded, dense canopy at an appropriate scale for the urban pedestrian environment. Honeylocust, observed on Free Street at Congress Square and on Middle Street near Temple Street, is another tree which is tolerant of urban conditions. Maple, Oak and Elm are canopy trees which are also of the appropriate scale for a street tree. Pear, Cherry and Japanese Tree Lilac are three ornamental trees which are being used as street trees. While they provide an attractive display of flowers during the spring or summer, their mature size is smaller than optimal for a street tree. They may have to be "limbed up" frequently in order to avoid conflicts with pedestrians and vehicles. Pear trees also tend to be so densely branched that they create a small, intense shade area beneath them.

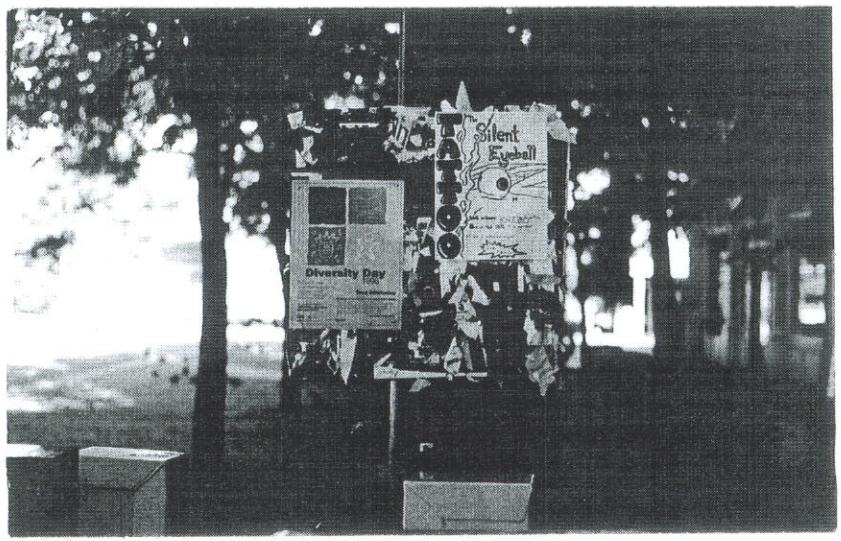
Almost every tree has been planted in a single tree pit within the existing sidewalk paving. While this is an economical and lower maintenance method of planting trees, the pit area is often smaller than what is necessary for a mature tree to thrive in conditions like those encountered in Downtown Portland. Tree grates have been installed in many instances which help to prevent compaction of the soil surrounding the tree trunk.

In recent years there has been no comprehensive street tree maintenance program practiced by the City of Portland. Maintenance responsibilities have been shared among the Department of Parks and Recreation, the Department of Public Works and the Portland Downtown District (PDD). Once a year the City holds a "PDD Blitz" where missing or dead street trees are replaced, trees are pruned and fertilized and assessed for damage or disease. The City also has a small tree maintenance program for recently planted trees. There is no automatic irrigation supplied to trees within the downtown area. Instead, trees are root-fed water, by hand, on an inconsistent basis throughout the dry season. Many trees face the additional stress of being planted over utility trenches or on areas of shallow soil depth (due to shallow bedrock throughout the downtown area). It is difficult to access street trees for maintenance during the day because of the traffic within the downtown.

Summary

As a whole, streetscape elements are not well-distributed throughout the downtown area. There are markedly more amenities at Monument Square and the MaineWay pedestrian mall than at other locations. Amenities were noticeably missing along Congress Street between Longfellow Square and Congress Square and between Monument Square and Franklin Arterial. The amenities inventoried are functional as parts but do not contribute to a sum which helps to identify or enhance the legibility of the downtown as a whole. There is little intentional clustering of amenities, either by related function or by style / historic period. No themes appear to have been established to associate amenities with specific places.

In some instances the amenities are of such marginal quality that they have a *negative* effect on the whole. There is currently little effort to remove damaged or broken furnishings, communicating a lack of pride in the streetscape environment. The Advisory Committee commented on the lack of telephones within the study area and communicated an interest in adding drinking fountains, public restrooms and hanging planters to the list of amenity improvements.



Analysis of Site Graphic Elements

Urban signs and graphics are an important complement to our downtown buildings, parks and public spaces. They provide identification, information and direction to drivers, passengers and pedestrians alike. They must successfully present a wide variety of municipal, commercial and public interest messages within the scale and complexity of the streetscape.

The challenges for any citywide sign system to resolve are to be well programmed in a systematic hierarchy, well designed so that they are visible and attractive, and very well maintained. Currently, Portland has numerous signs, kiosks and other graphic elements located throughout the downtown district. They vary widely in terms of scale, content, quality of design and maintenance. Downtown sign graphics are described in the following categories:

Description of Site Graphic Elements

Kiosks

Type 1: "Blue Info Hut" located in Congress Square

This component has good human scale and bold color, but needs better information graphics design/content/management plus improved/integral lighting that make it engaging and user-friendly in late afternoon and evening.

Type 2: "Anodized Bronze Mushroom" located in Monument Square

Any positive qualities of this component (good visibility/potential interior use and versatility) are ignored completely due to its being dark, monolithic, forbidding, dated and downright ugly. It is the wrong thing in the right place. Remove it and replace it with an information kiosk that is an expansion of the positive qualities of the "blue hut" kiosk in Congress Square into a luminous, flexible and attractive element that embodies a design expressive of - and unique to - downtown Portland.

Banners

Type 1: Vertical Rectangle mounted on streetlight poles

These signs are also generally well-placed and maintained. The "district identity" logos (Old Port & Arts District) applied to them are too esoteric and not really identifiable.

Summary

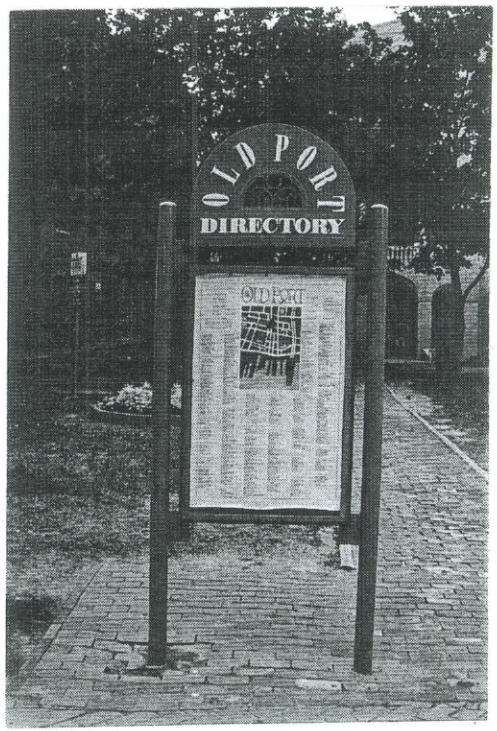
These signs serve an important function in guiding visitors, shoppers and tourists to key parking areas. However, they are almost always generic "traffic" type signs and usually too small to optimally perform their intended function for first time users.

The combination of urban graphics types are a strong supporting cast to the larger and more dominating scale of architecture and landscape that powerfully define the urban streetscape.

Interestingly, few of these "urban graphics" express a design vocabulary that is of – and unique to – downtown Portland.

In general, banners add color, complexity and information to the streetscape. Banners along Congress Street are generally colorful, but being all the same size (approx. 30"x72") is too regimented an approach. While some banner information (ex.: "Old Port Ahead", PM of A "Monet" exhibit) is valuable, uneven design/fabrication quality and placement at a too great a height for easy pedestrian visibility makes the overall banner system less effective.

Information Signs



Type 1: Information Directory "Hoop" Signs

These signs have some good information but are too design neutral (form & color); a generic design that is not expressive of "Portland". Color, form, complexity and greater graphic sophistication will reinforce a sense of place for these important sign types through continuity and quality. Content-wise, the maps and listings need to be more engaging and accessible. These signs stand alone. They need to be positioned in a larger information hierarchy.

Type 2: Directional "Hoop" Signs

Again, these signs have some good information but are too design neutral (not expressive of "Portland"). Each destination has an individual directional arrow (instead of being grouped with other destinations in the same direction) and low message to background contrast makes messages more difficult to read. Again, these signs stand alone. For example, there is no corresponding pedestrian version of these signs. They need to be positioned in a larger directional hierarchy.

Parking & Traffic/Safety Signs (municipal)

Type 1: Parking Symbol Signs

These signs serve an important function in guiding visitors, shoppers and tourists to key parking areas. However, they are almost always generic "traffic" type signs and usually too small to optimally perform their intended function for first time users.

Type 2: Transit/"Metro" Information Signs

These signs are generally well-placed, designed, maintained and appear to successfully meet their intended function for transit users.

Type 3: Street Name Signs

IV. RECOMMENDATIONS TRANSPORTATION

The Chapter presents the analysis supporting the development of transportation and pedestrian recommendations in Downtown Portland. Specifically, it details recommendations for; Intersections, On-Street Parking, and Pedestrian facilities. It should be noted that many of the improvement recommendations seek a balance between the automobile and pedestrians. In some cases traffic capacity is reduced for the motorist, but the resultant benefit to pedestrian users improve markedly.

Intersection Analysis and Recommendations

Temple Street/Middle Street/Union Street/Spring Street

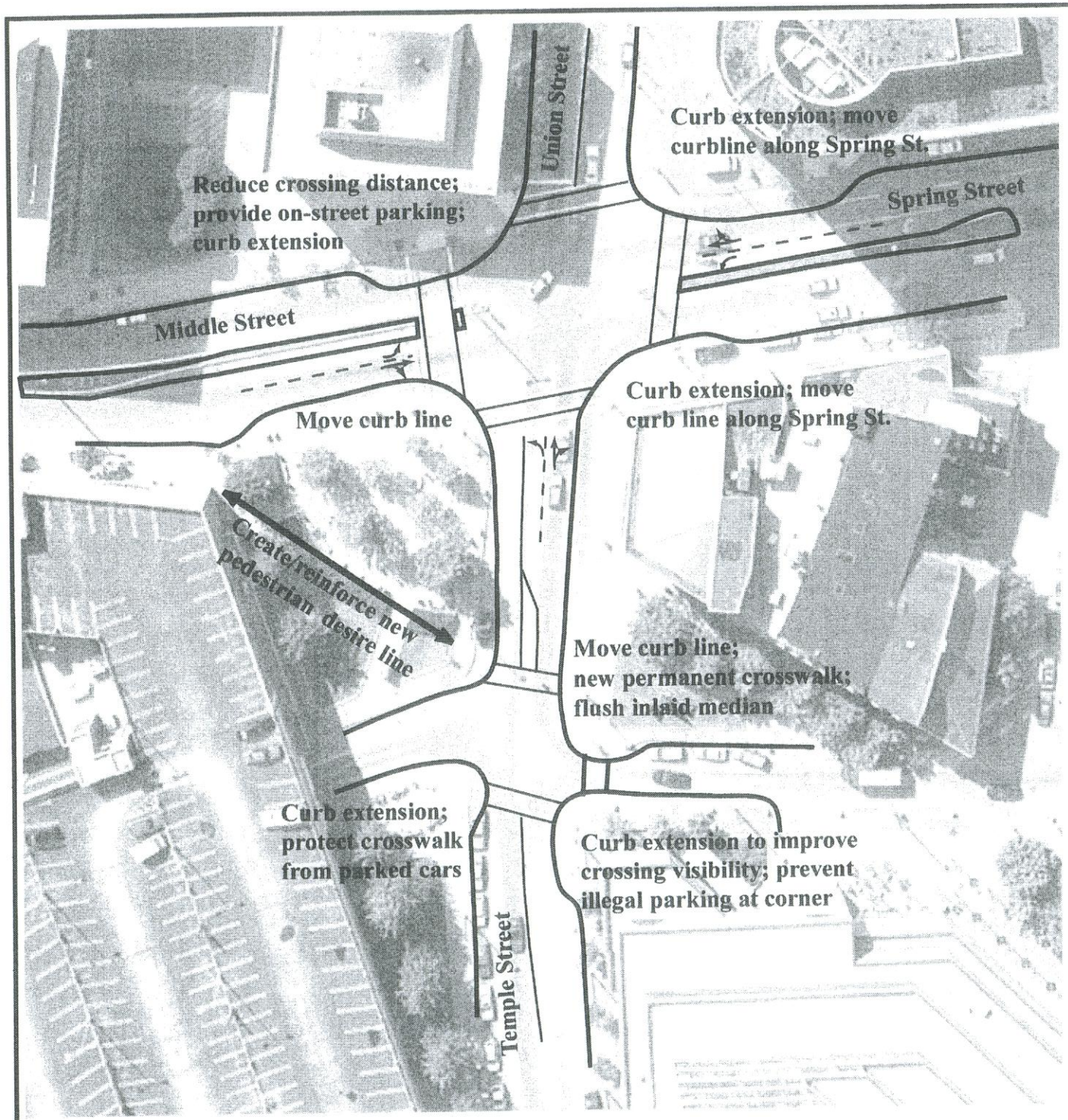
This location represents a critical link between the Old Port area and the Congress Street corridor. Accordingly, significant streetscape and pedestrian enhancements are proposed. Figure IV-1 presents the conceptual recommended improvements.

Two specific traffic improvements are recommended and include the following.

- Removal of one through lane on both Middle Street/Spring Street approaches.
- Altering the flash time of the traffic signal.

Intersection Operations

During the review of existing traffic operating conditions at this location, it became evident that excess capacity was provided on both Middle Street and Spring Street. In an attempt to provide enhanced pedestrian and streetscape opportunities an investigation into the impact of removing one through lane on both the eastbound and westbound approaches was conducted. In essence the Middle Street westbound and Spring Street eastbound approaches would each provided one exclusive left-turn lane and one shared through/right lane. To assess the impact of this capacity reduction, a capacity analysis was conducted per procedures contained in the Technical Memorandum – Existing Conditions-Transportation. The analysis was conducted for the year 2008 AM and PM peak hours. The results are presented in the following table.



Downtown Portland
Traffic and Streetscape Study
Portland, Maine

Temple St./Middle St./
Free St.

* Make intersection more pedestrian friendly
* Elimate 'excess' traffic capacity
* Channel pedestrians to safer crossing points

Approx. scale
1" = 100'

Conceptual Recommendations

May 1999
Figure IV-1

Wilbur Smith Associates

	AM		MID-DAY		PM		SATURDAY	
	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)
Middle St. Left	E	48.9	D	27.6	D	27.5	D	27.4
Middle St. Thru/Rt	B	11.2	B	14.1	B	13.9	B	11.1
Spring St. Left	C	24.6	D	25.7	D	26.2	C	24.1
Spring St. Thru/Rt	B	10.0	B	14.0	C	15.3	B	9.2
Union St. Lt/Th/Rt	C	22.1	C	22.0	D	35.7	C	17.5
Temple St. Left	C	17.2	D	38.5	C	20.7	C	17.4
Temple St. Thru/Rt	C	17.6	C	15.3	C	18.3	C	16.9
Overall	C	19.2	C	19.5	C	20.6	C	15.2

As noted above the proposed intersection will operate at an acceptable level of service in the future during all peak hours studied following the proposed alterations.

Traffic Signal Operations

Accident data indicated many of the reported accidents occurred during time periods when the traffic signal was in flash mode. To improve conditions it is recommended that the traffic signal begin flash operation at 12:00AM (midnight). It should be noted that the City of Portland Traffic Engineer has implemented this improvement.

Pedestrian Elements

Free Street Area

As noted above, this location provides a critical transition between the Old Port and the Congress Street corridor/Maine Way pedestrian mall. Currently, several pedestrian operational deficiencies exist. At the intersection of Free Street and Temple Street, pedestrians crossing Temple Street going toward the Old Port have very limited sight distance due to the curvature of the road. Also, although it is a No Parking zone, the area adjacent to the crosswalk often has cars and delivery trucks parked there that further restrict sight distance. On the parking garage side of this crosswalk, cars often park in the crosswalk, blocking pedestrian crossings.

Recommendations

- Create curb extension with bollards to reduce crossing distance and physically prevent illegal parking in advance of the crosswalk.
- Create curb extension to reduce crossing distance and physically prevent illegal parking on the crosswalk.
- Create curb extension across Free Street to reduce crossing distance.

Temple Street/Union Street/Spring Street/Middle Street

As described above, the Temple Street/Union Street/Spring Street/Middle Street intersection is quite pedestrian unfriendly due to its sheer size, configuration and poor aesthetics. Maine Way sidewalks funnel most pedestrians to attempt a mid-block crossing between Free and Spring Streets across to the Lobsterman Plaza. This is also more desirable because of long pedestrian wait times at the intersection due to traffic signal timing. At other approaches, crossing distances are long due to unnecessary width.

Recommendations

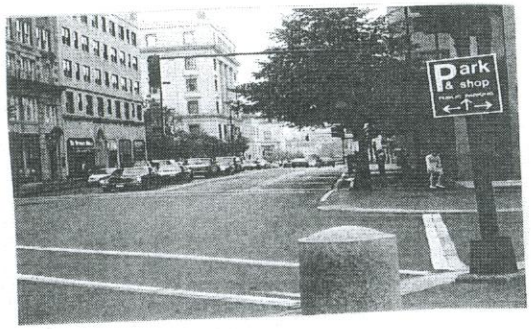
- Create permanent crosswalk at this corner across Temple Street to delineate preferred crossing point. Reconfigure sidewalk in Lobsterman Plaza to create channel pedestrians directly to this crosswalk.
- Realign curb line to reduce street width to eliminate unneeded width.
- Create flush/or slightly raised median to define left turn bay and add visual interest.
- Move curb line approximately 8' to 10' to reduce street width to eliminate unneeded lane. Use hard edge treatment to discourage mid-block crossings.
- Create curb extension to eliminate unneeded width/turning lane and provide more room for streetscape elements.
- Create curb extension to eliminate unneeded width/turning lane and provide more room for streetscape elements.
- Create curb extension to eliminate unneeded width/turning lane and provide more room for streetscape elements.
- Create curb extension to eliminate unneeded width/turning lane and provide more room for streetscape elements.
- Expand/replace median to provide improved and more aesthetic pedestrian refuge.

- Expand/replace median to provide improved and more aesthetic pedestrian refuge. Ensure design allows for left turning buses from Temple Street onto Middle Street.

Congress Street/Temple Street

This location currently operates at acceptable levels of service during peak periods, however, pedestrian signal operations are perceived to be unfriendly. Refer to page IV-19 for information relative to pedestrian operations.

Congress Street/Elm Street



Located adjacent to Monument Square, this location experiences severe congestion as a result of heavy traffic volumes, limited capacity, and high pedestrian activity. The following improvements attempt to reduce vehicular delay within a severely constrained urban space. Figure IV-2 presents the conceptual improvement.

Two specific traffic improvements are recommended and include the following.

- Restripe westbound Congress Street to accommodate a left-turn lane.
- Institute "No Stopping/No Standing" regulation on the north side of Congress Street between Elm Street and Preble Street.

Intersection Operations

As noted in the document Technical Memorandum – Existing Conditions - Transportation, this location currently operates poorly during peak travel periods. The primary factor contributing to the congestion is the heavy left-turn volume turning onto Federal Street. To improve traffic congestion it is recommended that the Congress Street westbound approach be restriped to consist of an exclusive left-turn lane and a shared through/right lane. A capacity analysis was conducted during the critical AM and PM peak hours (time periods currently operating at level of service "F") to quantify the benefits of this recommendation. The results are summarized as follows.

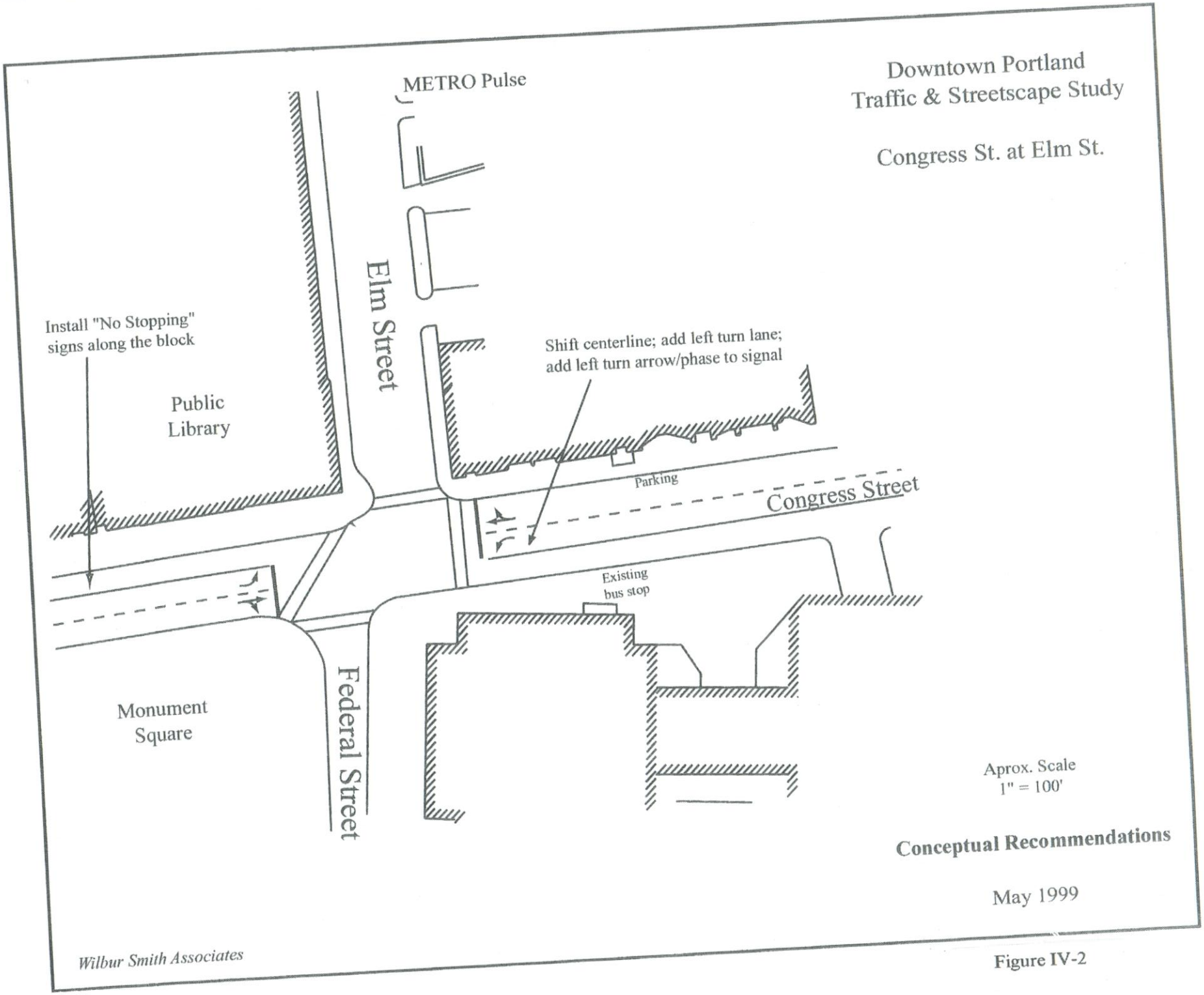

Downtown Portland
Traffic & Streetscape Study
Congress St. at Elm St.
METRO Pulse
Elm Street
Install "No Stopping" signs along the block
Public Library
Shift centerline; add left turn lane; add left turn arrow/phase to signal
Parking
Congress Street
Existing bus stop
Monument Square
Federal Street
Aprox. Scale 1" = 100'
Conceptual Recommendations
May 1999
Wilbur Smith Associates

Figure IV-2

	AM		PM	
	LOS	**Delay (sec)**	**LOS**	**Delay (sec)**
Congress EB Lt	C	23.6	F	72.3
Congress EB Th/Rt	A	2.7	A	2.3
Congress WB Lt	D	30.5	F	68.7
Congress WB Th/Rt.	B	9.0	B	7.5
Overall	B	10.2	D	27.8

As noted above, the subject intersection is expected to improve from a level of service "F" to level of service "B" during the AM peak hour and level of service "D" during the PM peak hour. It should be noted that the results are based upon the continued provision of the exclusive pedestrian phase. If a concurrent pedestrian phase is used (as recommended in a later section), level of service will improve from those noted above.

A second factor contributing to intersection congestion is the stopping of vehicles on westbound Congress Street between Elm Street and Preble Street. With limited travel space, stopped vehicles impede through vehicles, which causes vehicles to queue into the Congress Street/Elm Street intersection. To eliminate this problem it is recommended that a "No Stopping/No Standing" regulation be instituted and enforced regularly. To allow for truck deliveries it is suggested that vehicles be allowed to double park on Elm Street north of Congress Street or that parking spaces be converted to a loading zone (It may be possible to combine the existing loading zone near the Public Market, thereby resulting in no loss in parking spaces).

Pedestrian Elements

This intersection currently provides for an exclusive pedestrian crossing phase. It is recommended that concurrent crossing be allowed after the phase for left turning vehicles and that there be an exclusive phase also (no traffic entering the intersection) for pedestrian crossing Congress Street. Construction of a curb extension on the public library corner of the intersection to reduce pedestrian crossing distances is also recommended.

Congress Street/Forest Avenue

This location currently experiences significant congestion during peak periods. Problems are related to inefficient signal timing and the close spacing of the intersection to Congress Square. Accordingly, the focus of traffic improvements are directed toward signal timing optimization.

One specific traffic improvement is recommended and includes the following.

- Optimize traffic signal timing.

Intersection Operations

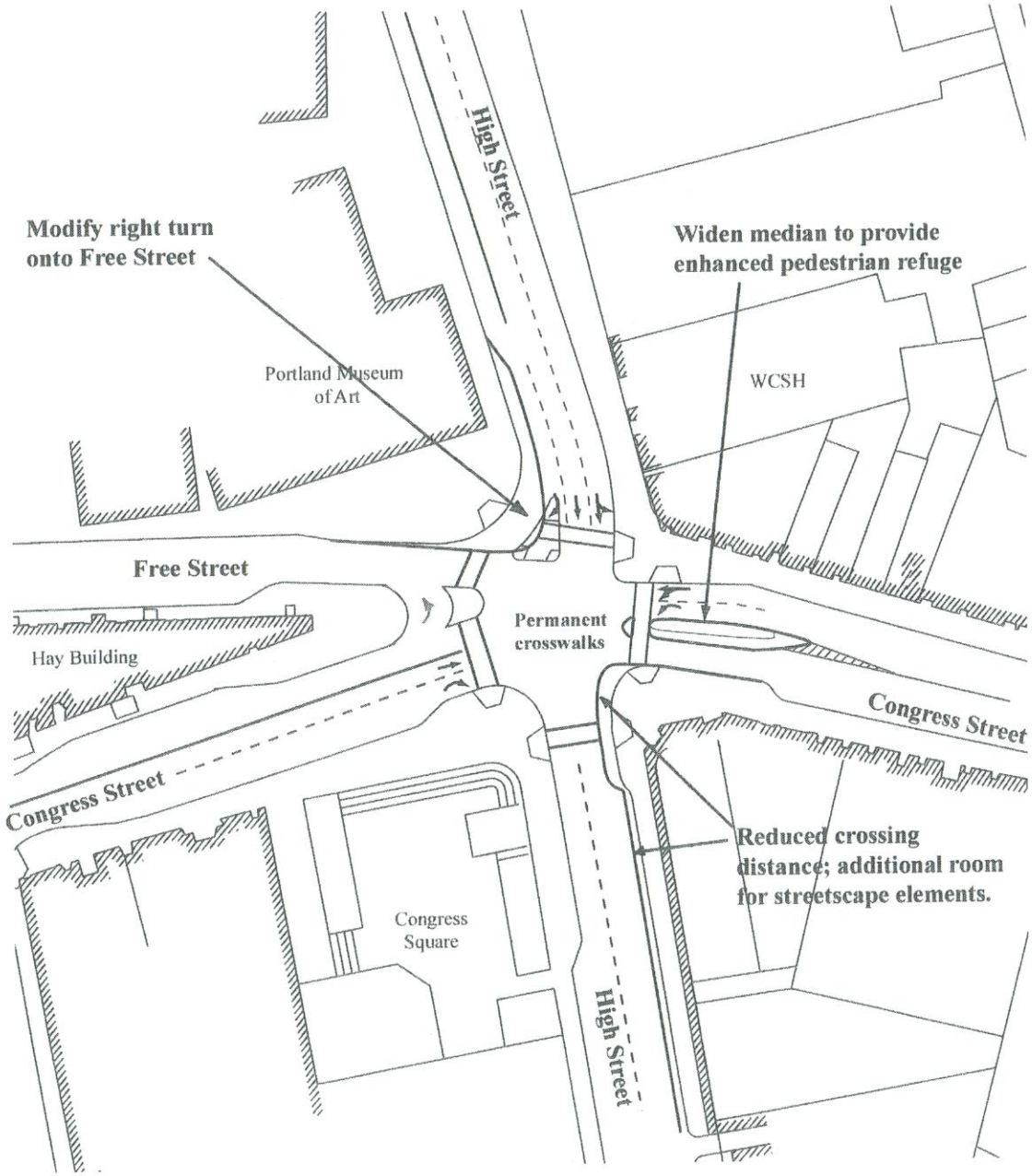
As noted above traffic congestion at this location is directly related to traffic signal timing and coordination with the Congress Square intersection. Insufficient green time is currently assigned to Congress Street westbound movements. To improve conditions it is recommended that the traffic signal timing be optimized and coordinated with High Street. This optimization will likely require the shortening of green time on High Street and applying this green time to the Congress Street westbound signal phase. The following table depicts the results of the capacity analysis.

	AM		MID-DAY		PM		SATURDAY	
	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)
Congress EB Thru	B	6.7	B	5.6	B	6.4	B	5.5
Congress WB Th/Rt	D	32.2	D	28.5	D	29.7	D	33.6
Forest Lt/Rt	C	16.7	C	18.2	C	19.6	C	21.3
Overall	C	18.3	C	17.8	C	18.5	C	20.4

As noted above, improved traffic operating conditions are expected at the subject intersection following implementation of signal timing changes. The analysis assumed the current exclusive pedestrian phase is converted to a concurrent phase (refer to Page IV-20).

Downtown Portland
Traffic & Streetscape Study
Portland, Maine

Congress Square:
Congress St. at High St.



* Make intersection more legible for pedestrians
* Make the intersection more compact
* Improve pedestrian crossings
* Improve overall traffic flow

Approx. scale
1" = 100'

Conceptual Recommendations

May 1999

Wilbur Smith Associates

Figure IV-3

Congress Street/High Street/Free Street

This location currently operates poorly during peak periods and is unfriendly for pedestrians. Accordingly significant improvements are recommended and are depicted on Figure IV-3.

Several traffic improvements are recommended and include the following.

- Implement a concurrent pedestrian phase with pushbuttons; add phase to ensure pedestrians crossing Congress Street eastside and Free Street are conflict free (refer to Page IV-20 for details).
- Optimize traffic signal timing by reducing green time on High Street and increasing green time on Congress Street.
- Remove northbound High Street channelized right-turn to Free Street, provide typical urban design right-turn lane.

Intersection Operations

Poor traffic operating conditions at this location are primarily confined to the Congress Street westbound approach. The operating deficiency is generally related to two issues: inadequate green time for westbound movements; and left-turn movements onto Free Street impeding throughput travel. To improve travel conditions and enhance pedestrian mobility the changes noted above are recommended.

The following table presents the level of service summary following implementation of the above recommendations. As noted, acceptable operating conditions are projected.

	AM		MID-DAY		PM		SATURDAY	
	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)
Congress EB Lt	C	18.9	D	26.7	C	18.0	B	15.0
Congress EB Th/Rt	C	17.0	C	16.6	C	15.5	C	17.2
Congress WB Lt/Th	D	30.7	D	27.6	C	21.1	F	99.5

Congress WB Rt	C	15.8	C	16.1	C	16.0	C	16.5
High St. Lt/Th	B	8.1	B	7.1	B	8.1	B	6.3
High St. Right	B	11.8	B	11.4	B	10.8	B	11.0
Overall	B	13.3	B	13.4	B	11.7	D	27.4

Pedestrian Elements

This intersection currently provides confusing pedestrian crossings. Crossing the south side of High Street (Portland Museum of Art side) requires a series of crossings to channelized turn islands. It is desired to greatly simplify this crossing for pedestrians. To do this, the intersection is proposed to have a more standard configuration, eliminating these channelized islands where possible.

Recommendations

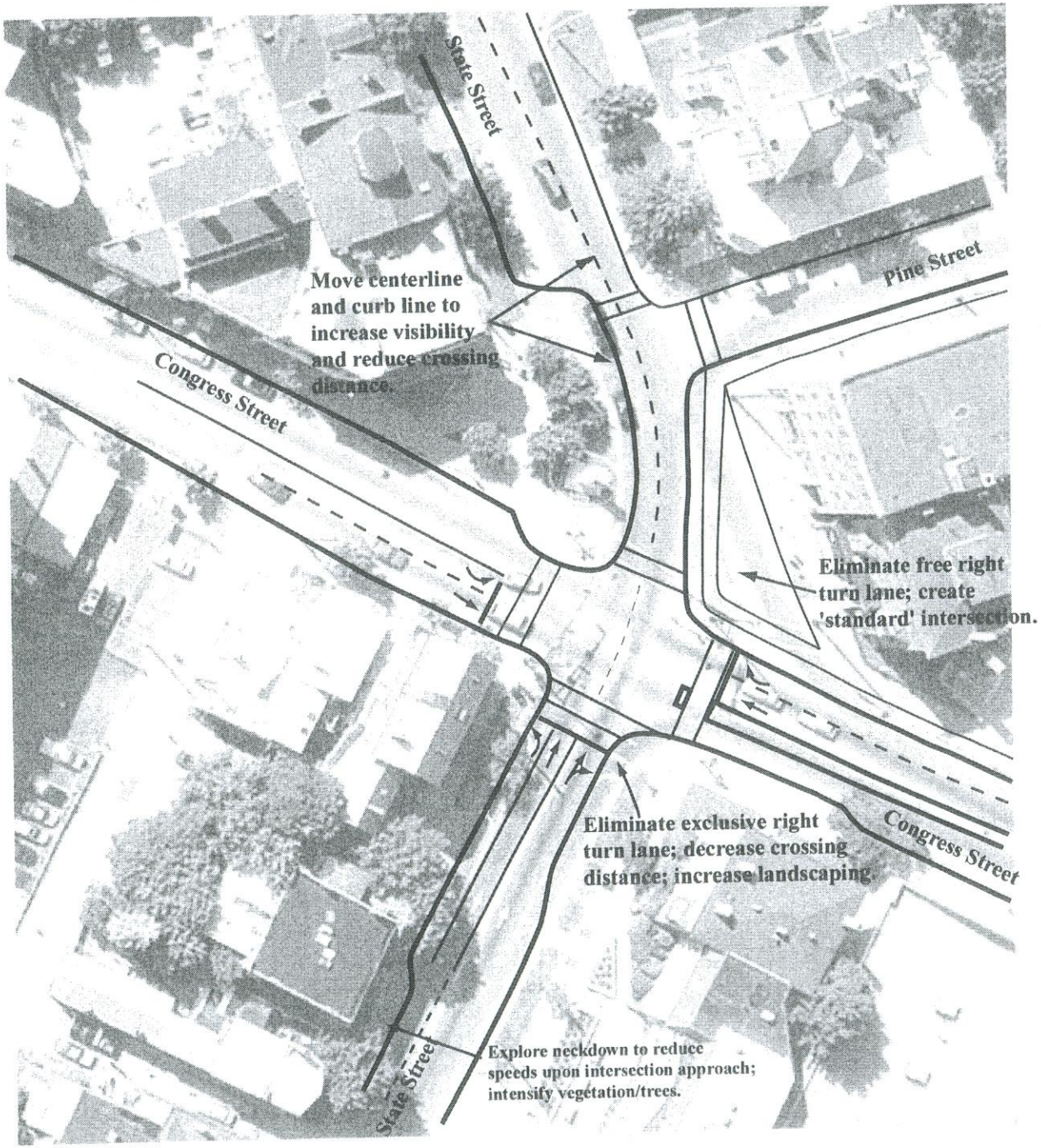
- Move the curb line on the north side of High Street to reduce the crossing distance to 27'.
- Eliminate the channelized right turn lane onto Free Street to make the pedestrian crossing simplified.
- Increase the median width to provide improved pedestrian refuge and aesthetics.

Congress Street/State Street

With this intersection functioning as a "Gateway" to Downtown Portland from the west, implementation of significant pedestrian and streetscape improvements were identified. To accommodate these improvements, roadway modifications were necessary. The following summarizes the recommendations, as depicted on Figure IV-4.

Several traffic improvements are recommended and include the following.

- ❑ Remove eastbound Congress Street channelized right-turn lane; provide typical urban design right-turn lane.
- ❑ Continue use of concurrent pedestrian phase.



Downtown Portland
Traffic & Streetscape Study
Portland, Maine

Longfellow Square:
Congress St. at State St.

* Create pedestrian/traffic gateway
* Make intersection more legible for pedestrians
* Make the intersection more compact, reducing space devoted to roadways
* Improve pedestrian crossings
* Minimize impact on traffic

Aprox. scale
1" = 100'

Conceptual Recommendations

May 1999

Wilbur Smith Associates

- Eliminate right-turn lane from State Street approach to intersection.
- The City should investigate the visibility of the left-turn signal support for southbound State Street (identified at public hearing).

Intersection Operations

An evaluation of traffic conditions was conducted to assess the impact of incorporating the above recommendations. As noted in the table below, acceptable operating conditions can be provided in the Year 2008 following implementation of the above improvements.

	AM		MID-DAY		PM		SATURDAY	
	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)
Congress EB Thru	D	32.0	D	29.9	E	44.9	D	29.1
Congress EB Rt	C	18.9	C	20.1	C	23.1	C	18.6
Congress WB Left	B	11.1	B	11.4	B	12.8	B	14.1
Congress WB Th	B	10.4	B	9.9	B	11.1	B	10.1
State St. Left	E	45.4	C	23.9	D	28.6	D	26.7
State St. Th/Rt	B	9.7	B	11.5	C	19.9	B	12.2
Overall	C	18.0	C	16.7	C	23.5	C	16.7

Pedestrian Elements

Due to its configuration, there are significant pedestrian-vehicle conflicts. These occur when crossing the south side of State Street (Café Uffa side) across the channelized right turn lane from EB Congress Street to southbound State Street. The crossing across State Street at Pine Street also introduces conflicts due to poor sight distance for southbound State Street through-traffic and WB Congress Street traffic turning left onto State Street. The curvature of the road and the Longfellow statue obstruct drivers' sight of pedestrians at the crosswalk.

Recommendations

- Remove channelized right turn to eliminate pedestrian-vehicle conflict and greatly improve the aesthetics of the intersection. Provide hard edges along State Street edge of corner to prevent/discourage crossings at other than at crosswalk across State Street.

- Create curb extension to reduce crossing distances for pedestrians and create more room for pedestrian amenities.
- Remove right turn lane to create combined through-right turn lane to reduce crossing distance for pedestrians and provide more room for streetscape improvements
- Create median to provide pedestrian refuge and improve aesthetics.
- Move curbline to reduce crossing distance and improve visibility of pedestrians at southeast side of Pine Street crosswalk. Shift centerline of roadway to the west.

Congress Street/Pearl Street

Two specific traffic improvements are recommended, as depicted on Figure IV-5, and include the following.

- ❑ Install new fully-actuated traffic signal with pedestrian equipment.
- ❑ Alter flash time of traffic signal.

Intersection Operations

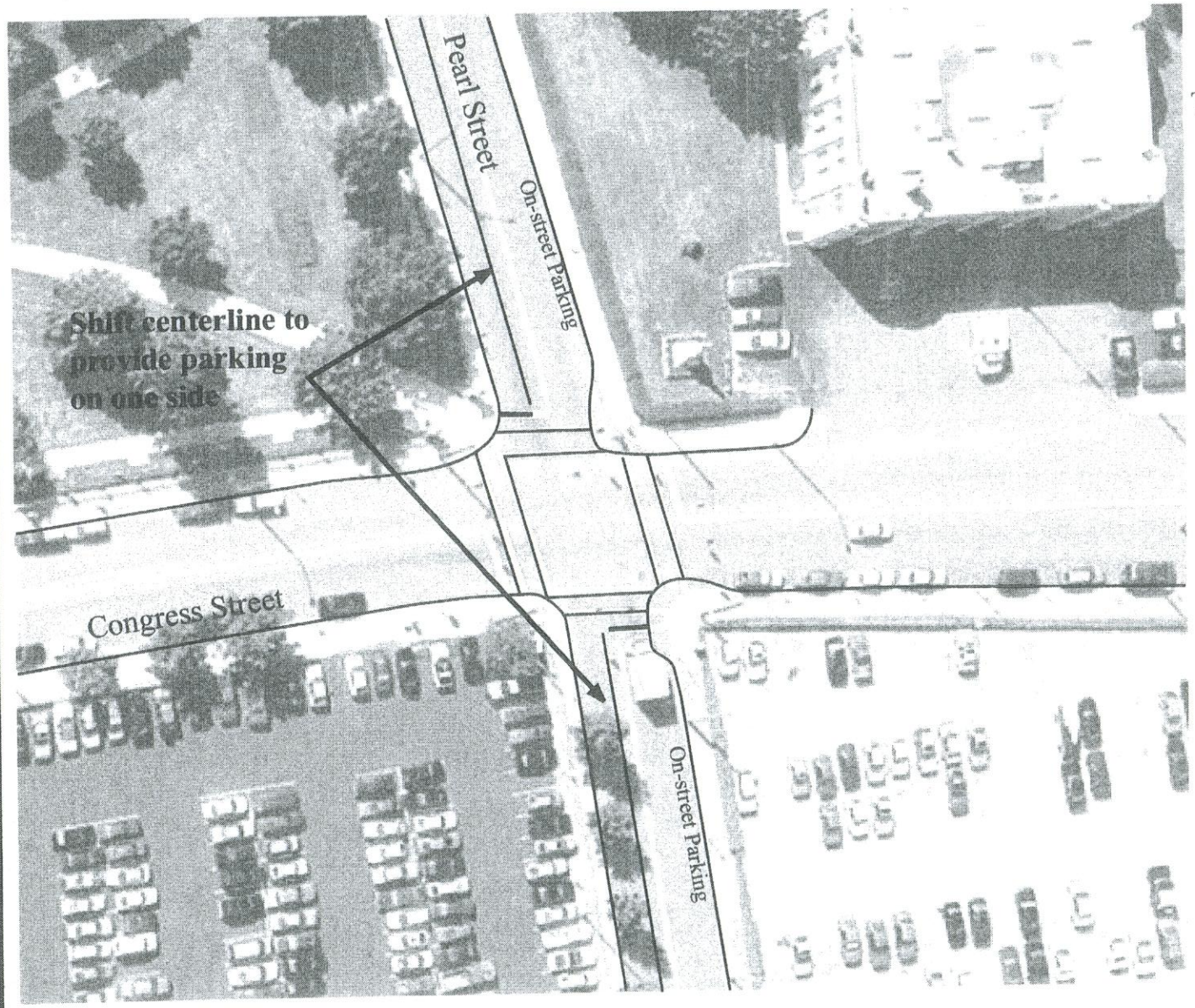
Although this location currently operates at an acceptable level of service, operational improvements are recommended. The traffic signal should be upgraded to consist of a fully-actuated demand responsive signal system. (The City has currently programmed these improvements). Mast arm traffic signal supports are suggested. The signal should also include pedestrian heads and pushbuttons.

Traffic Signal Operations

Accident data indicated that a significant level of accident experience occurs during nighttime periods when the traffic signal is in flash mode. To improve safety, it is recommended that the traffic signal remain in operation until 12 AM (midnight).

Pedestrian Elements

Curb ramps should be a high priority to attain compliance with the ADA. Additionally, curb extensions should be constructed to reduce pedestrian crossing distances.



Downtown Portland
Traffic & Streetscape Study
Portland, Maine

Congress St. at Pearl St.

Conceptual Recommendations

May 1999

Wilbur Smith Associates

Figure IV-5

Congress Street/Franklin Arterial

This location is on the eastern fringe of the study area. No particular traffic or safety problems were identified. However, some pedestrian facility enhancements are recommended and noted below.

Pedestrian Elements

Signal phasing should be reviewed with the intent to reduce pedestrian wait times. As currently phased, a pedestrian walking along Congress Street cannot cross both legs of Franklin Street in one cycle length. Curb ramps should also be a high priority for installation to attain compliance with ADA.

On-Street Parking Analysis and Recommendations

The following sections examine street areas with the goal of increasing the on-street parking supply. The analysis was based upon a physical survey of all street blocks in the study area, as presented in the document, Technical Memorandum – Existing Conditions - Transportation.

Modification of Existing Parking Restrictions

A review of existing on-street parking regulations was conducted to identify locations where additional parking could be created. The analysis was based upon a detailed field review of potential locations as it relates to sight distance, impact to turning vehicles, and other concerns. Recommendations are summarized as follows and indicate an additional 13 spaces can be provided.

- **Congress Street between Pearl Street and Franklin Arterial** - Reconfigure metered spaces (adds 1 space).
- **Congress Street** - Convert 5 minute Tour Bus Stop to seasonal metered space (adds 2 spaces).

- **Brown Street west side near Cumberland Avenue** – Convert No Parking to metered space (adds 1 space).
- **Casco Street west side north of Shepley Avenue** – Convert No Parking to metered space (adds 1 space).
- **Casco Street east side near Cumberland Avenue** – Convert No Parking to metered space (adds 1 space).
- **Congress Street** – Shorten curb extension on northeast corner of Oak Street from 79' to 59' (adds 1 spaces).
- **Congress Street** – Shorten curb extension on northwest corner of Casco Street from 75' to 35' (adds 2 spaces).
- **Congress Street** – Shorten curb extension on south side of Congress Street opposite Casco Street from 175' to 135' (adds 2 spaces).
- **Park Street east side near Spring Street** – Provide parking spaces at gated parking entrance (adds 2 spaces).

On-Street Parking Enhancements

Pearl Street between Cumberland Avenue and Federal Street

Pearl Street currently is 33 feet wide and provides for one travel lane in each direction with parking prohibited on both sides. It is recommended that Pearl Street between Cumberland Avenue and Federal Street is restriped to accommodate one 11.5-foot travel lane in each direction and one 10-foot parking lane on the west side of Pearl Street. During the morning time period, vehicles wait to enter the Top of the Port parking lot. To minimize disruption to through vehicles on Pearl Street, it is recommended that parking be prohibited within 75 feet of the parking lot entrance to allow through vehicles to by-pass vehicles waiting to enter the lot. It is also recommended that a study be conducted evaluating the feasibility of relocating the parking lot booth to allow greater on-site vehicle storage. This recommendation will add approximately 25 on-street parking spaces.

Temple Street between Congress Street and Federal Street

In an effort to increase on-street parking, it is recommended that Temple Street between Congress Street and Federal Street be restriped to accommodate parking on the west side between Federal Street and the entrance to the Bank. Approximately 96 feet exists between Federal Street and the

Bank Entrance. Accordingly, it is recommended that parking is prohibited within 36 feet of Federal Street and the remaining space is designated for parking. This recommendation will add approximately 3 parking spaces.

High Street between Congress Street and Spring Street

The exclusive right-turn lane on High Street onto Free Street extends the entire block to Spring Street. An evaluation was conducted to identify the feasibility of using a portion of the right-turn lane, nearest Spring Street, for on-street parking. According to a queue analysis conducted for the subject right-turn movement for the year 2008, the worst case queue length (99th%) was estimated to be 250 feet. The block length on High Street between Free Street and Spring Street is approximately 340 feet, indicating 4 to 5 parking spaces can be provided.

Bus Stop Recommendations

Current Conditions

There are currently 12 bus stops serving Congress Street between State Street and City Hall (total, both sides of street). All are configured with a bus pullout area to provide for curbside pickup of passengers. These bus pullouts range in length from 48' to 100'. The locations of these bus stops are indicated in Figure IV-6. Daily bus ridership for each stop is also indicated, for riders getting on and off the bus.

The METRO Pulse is a timed-transfer point on Elm Street. Five (of seven total) METRO bus routes use the Pulse; two routes (1 and 8) use bus stops at the corner of Elm and Congress as transfer points. METRO routes within the study area are shown in Figure IV-7. The South Portland Bus Service and the Biddeford-Saco-Old Orchard Bus Service also use the Congress Street bus stops but have much lower frequency of service. Figure also shows the bus frequency by segment for the afternoon peak period, 4 to 5 PM. Segment A between State Street and Forest Avenue is traversed by 5 eastbound METRO buses and 7 westbound buses. On Segment B, there are 16 eastbound METRO buses and 7 westbound buses between Forest Avenue and Monument Square. On Segment C, there are 8 eastbound and 5 westbound buses in that same time period.

Existing Conditions

LEGEND

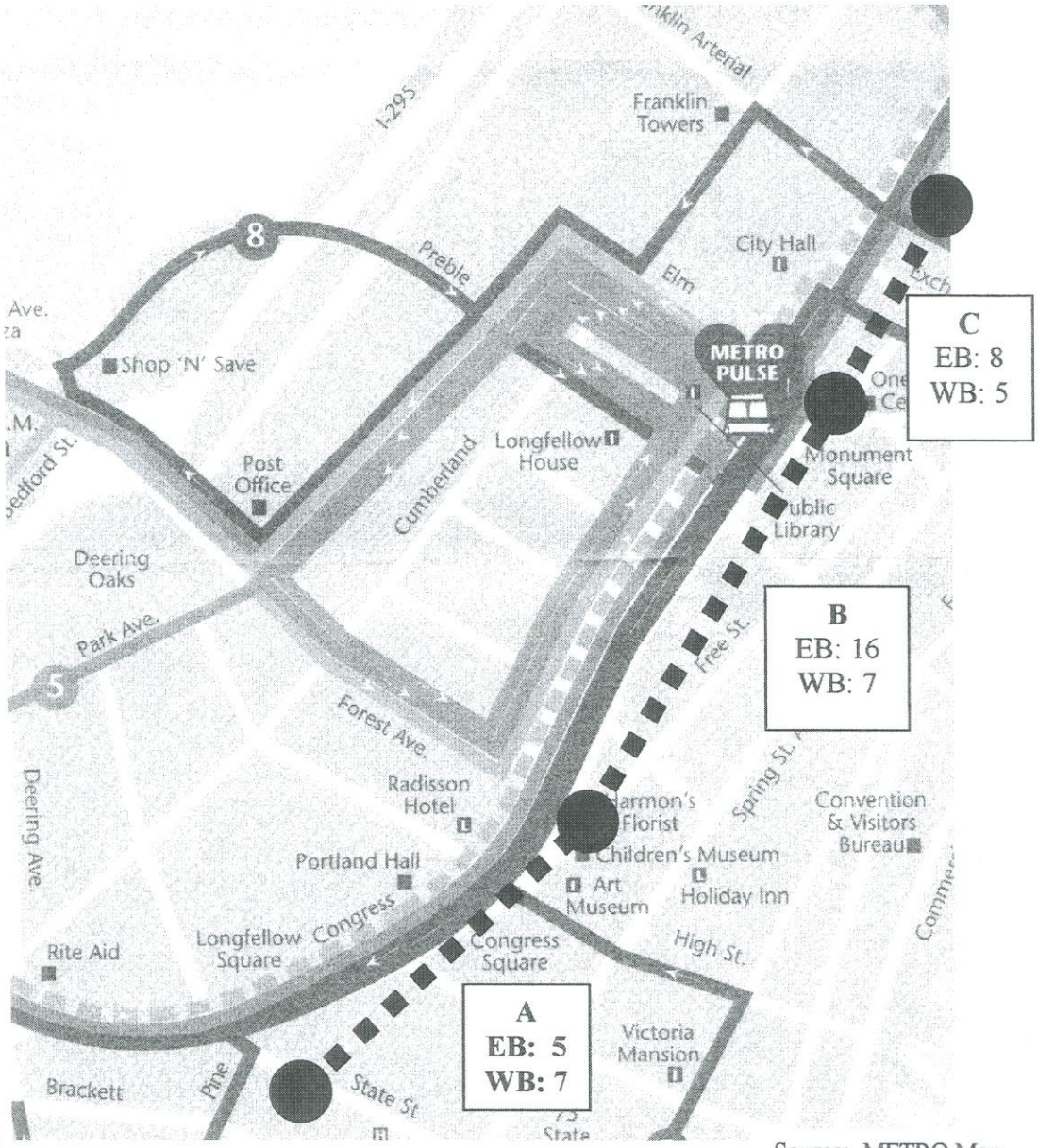
xx / xx Passengers On / Off Daily

XX' Length of Bus Pullout

Portland Downtown Traffic and Parking Study
Bus Stops and Ridership

Wilbur Smith Associates

Figure IV-6



Source: METRO Map and timetable, 10/97.

METRO Bus Routes and PM Peak Hour Frequency by Segment

LEGEND
PEAK HOUR
EB: # eastbound buses
WB: # westbound buses

Wilbur Smith Associates

Figure IV-7

As discussed in the overview above, it is desired by downtown merchants to increase the amount of on-street parking in the study area. The cumulative length of bus stops between State Street and City Hall is 885', potentially providing 13 parking spaces on the north side (City Hall) of Congress Street and 22 parking spaces on the south side (Monument Square) if no accommodations for bus stops were provided. Over 1200 total METRO riders used these stops during the one day transit survey conducted in 1997 (METRO ridership data, collected by the GPCOG).

Reconfiguration Alternatives

The current configuration of using bus pullouts is desirable for several reasons. The primary one is their ability to pull out of the flow of traffic completely, allowing traffic to flow. Other reasons include:

- A perceived higher level of bus accommodations for transit users by devoting space to bus stops;
- Buses are removed from the travel flow during the winter months when the 'kneeling feature' and wheelchair ramp can freeze due to buildup of grit and snow on the underside of the bus (the bus cannot move until the mechanism is fixed, potentially blocking traffic for up to an hour);

On the downside, these pullout areas tie up typically prime on-street parking locations directly in front of store fronts and require buses to pull out of traffic and then wait for a gap in traffic to pull back out into the traffic stream.

The primary reason for reconfiguring bus stops would be to free up additional room for on-street parking. A secondary reason would be to improve bus operations by eliminating the need to pull out of and back in to the traffic flow from a bus stop. The reconfiguration alternatives for the bus stops are 1) do nothing; 2) relocate to a different location; 3) eliminate a stop altogether; 4) convert them to be at curb extensions; or 5) reconfigure to meet minimum design standards (80'). Where stops are provided they would need to be at curb extensions to allow for the boarding and exiting of riders in wheelchairs. The stop should not be located at a curb ramp; the point of contact between the wheelchair ramp of the bus and curb ramp would not be flush.

Benefits of bus pullouts include:

- Allows buses to pull out of the traffic stream, allowing traffic to continue to flow;
- If wheelchair ramp or kneeling feature of bus 'freezes', then bus will be out of travel lane;
- Bus does not block crosswalks; and,
- Does not "encourage" passing of stopped buses in opposite flow travel lane.

Disadvantages of pullouts include:

- Cars often park in pullout areas, not allowing the bus to pull in fully;
- Bus drivers must pull out of, then back into traffic flow, causing delay to bus riders;
- If the pullout length is not adequate, the bus is at an angle, blocking traffic and making the merge back into traffic dangerous (driver cannot see traffic behind the bus).

Advantages of bus stops at curb extensions include:

- More efficient for bus operations -- bus does not have to decelerate into the pullout and is not delayed to re-enter traffic stream;
- Reduces potential for accidents pulling into and out of bus stop; and,
- Frees up additional space for on-street parking.

Disadvantages of bus stops at curb extensions include:

- Bus blocks traffic when stopped to pick up or drop off passengers;
- Potential for blocking travel lane for extended periods if wheelchair ramp or kneeling feature malfunctions;
- Frustrated drivers might be tempted to pass a stopped bus, causing a pedestrian or vehicle accident.

A number of factors entered into the analysis of these bus stops for potential reconfiguration or conversion to other uses. These are:

- Distance between stops – Bus stops should be provided every 500' +/- (METRO guideline);
- Adequate length for bus pullouts – a minimum of 80' should be provided if this configuration is used;
- Convenience of riders – especially those in wheelchairs and the elderly (these riders require more time for boarding and exiting the bus);

- Effect on traffic flow – bus pullouts remove bus from traffic flow if adequate length is provided – wheelchair ramps and kneeling feature of buses can 'freeze', making bus unable to move;
- Level of daily usage – how many riders per day use the stop.

Three alternative configurations are presented. Following is a matrix that compares the alternatives. Maximum numbers of parking spaces that could be created are given. These are very preliminary figures and would involve closely evaluating each location.

The first alternative generally retains the existing configuration of providing bus pullouts, shown in Figure IV-8. In this alternative, several bus pullouts are converted to stops at curb extensions. Several are also enlarged to reach the minimum of 80'. This alternative provides a maximum net addition of eleven parking spaces.

The second alternative converts all of the existing pullouts in the study area to mid-block curb extensions and corner curb extensions. This makes loading/unloading of passengers more efficient for transit but introduces delays because the bus remains in the through travel lane. This alternative is shown in Figure IV-9. This alternative provides a maximum net gain of 25 parking spaces.

The third alternative converts bus pullouts to curb extensions at corners. This is shown in Figure IV-10. This alternative would provide a maximum net gain of 26 parking spaces.

It is recommended that the use of curb extensions for bus stops be more fully explored by a trial field test and evaluation. This will include selecting three or more sites to test the three configurations of bus stops at curb extensions: near side; far side; and mid-block. These locations should be evaluated for before and after conditions for the following suggested criteria:

- Convenience of transit users (qualitative);
- Traffic safety and delay for motorists (quantitative and qualitative);
- Effect on transit operations -- increased average travel speed, reduced average stop time at bus stops; driver perception of change related to operations and safety (quantitative and qualitative);
- Pedestrian accessibility and safety (quantitative -- likely limited -- and qualitative).

Bus Stop Configuration Alternatives
Evaluation Matrix

Alternatives	Evaluation Criteria				
	Construction Costs	Maintenance Costs	Traffic Flow	Transit Operations	Parking Supply
Existing Conditio	N/A	None added due to pullouts alone.	Buses move out of traffic flow; block traffic where pullout width is insufficient.	Buses must pull into and out of traffic, delaying buses.	N/A
Maintain Pullouts/Limited Change	Construct two new curb extensions	Negligible additional costs due to new curb extensions	Minor additional traffic delays due to new configuration. Improvement where pullouts extended	Improvement due to pullout lengthening at two locations. Continued delay at pullouts.	Maximum net gain of 11 parking spaces
Mid-Block/Corne	9 new, 2 lengthened curb extensions	Additional plowing costs due to new undulations in curb line	Delayed traffic flow due to buses remaining in travel lane	Improved average speed of buses due to not pulling out of and into traffic repeatedly.	Maximum net gain of 25 parking spaces
Corner	5 new, 6 reconfigured lengthened curb extensions	Negligible additional costs due to new curb extensions	Delayed traffic flow due to buses remaining in travel lane. Buses may block turning vehicles from side streets	Improved average speed of buses due to not pulling out of and into traffic repeatedly.	Maximum net gain of 26 parking spaces

Bus Stop at Curb Extension

Bus Pullout

LEGEND
+/- X Gain/Loss of Parking

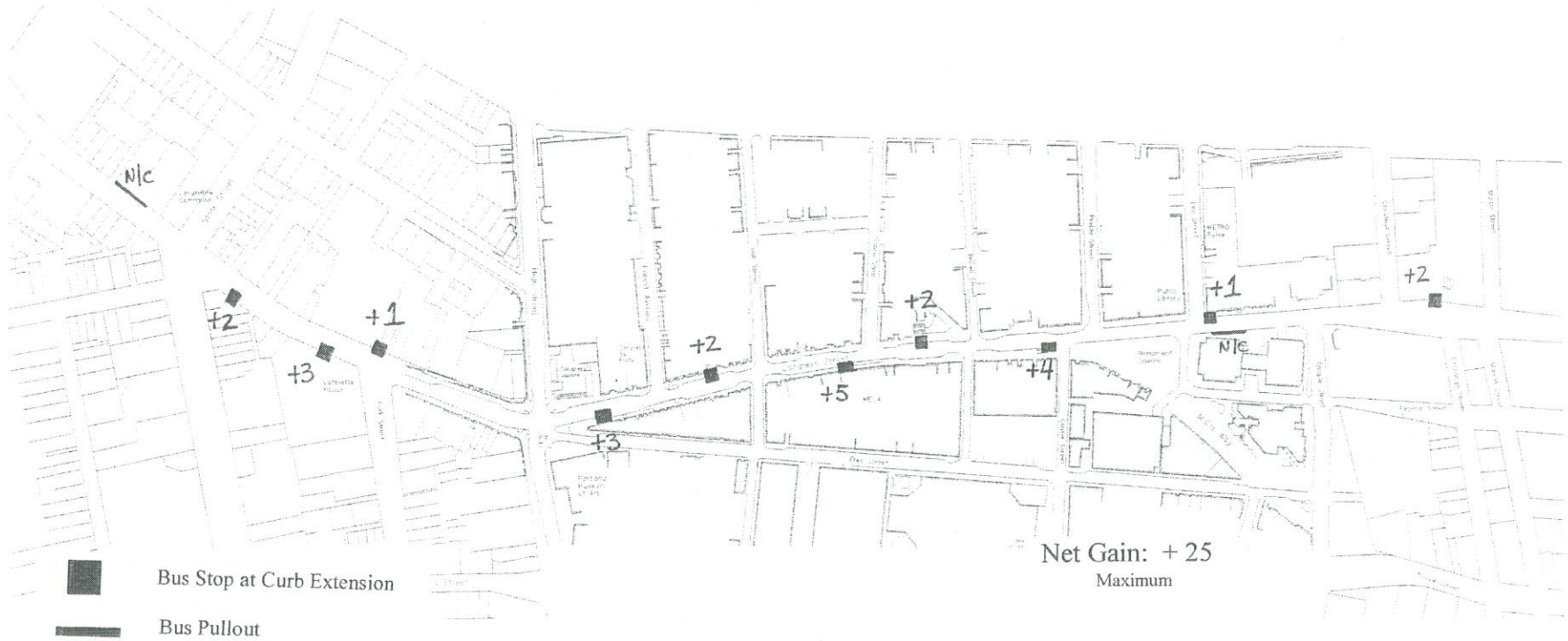
Keep Pullouts Alternative

(Some Conversion to
Stops at Curb Extensions)

Portland Downtown Traffic and Parking Study
Bus Stop Reconfiguration Alternatives

Wilbur Smith Associates

Figure IV-8



LEGEND
+/- X Gain/Loss of Parking

Bus Stops at Mid-Block & Corners

Portland Downtown Traffic and Parking Study
Bus Stop Reconfiguration Alternatives

Wilbur Smith Associates

Figure IV-9

LEGEND
+/- X Gain/Loss of Parking

Bus Stops at Corners

Portland Downtown Traffic and Parking Study
Bus Stop Reconfiguration Alternatives

Wilbur Smith Associates

Figure IV-10

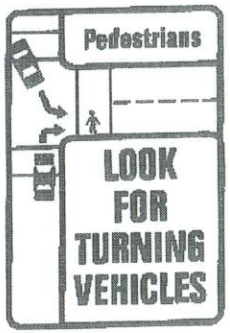
It is essential that an outreach/information process be conducted at project milestones including: 1) site selection 2) concept design/before implementation and 3) after evaluation, to explain the purpose of the field test, its goals and measures of evaluation. This will increase 'buy in' of stakeholders (transit users, motorists, business owners and the transit agencies) and minimize the likelihood of confusion upon implementation and unrealistic expectations.

Several test locations along Congress Street should be selected for evaluation. The use of curb extensions potentially can create significant additional on-street parking and improve some aspects of transit operations. But, given the space and geometric constraints in the corridor, it is essential to field test and evaluate this concept more fully. Specific concerns relate to mechanical reliability of the wheelchair lift and kneeling feature of the buses and traffic delays/flow along Congress Street. This field test can be made with minimal construction cost using temporary materials. Signs will also need to be temporarily modified. The duration of the test should minimally be three months unless safety considerations arise and require immediate correction or removal.

Pedestrian Analysis and Recommendations

A series of pedestrian recommendations are provided below that are not site-specific but pertain to pedestrian issues in the study area.

- Curb ramp design guidelines. A standard curb ramp design should be adopted for the corridor. In general, two curb ramps at each corner should be provided, one for each crosswalk One curb ramp is generally acceptable when the curb radius is large and the ramp is able to be aligned with the crosswalk.
- Pedestrian phasing guidelines. Provide for concurrent crossing at traffic signals to reduce wait times, where appropriate. Concurrent crossings generally allow shorter overall traffic signal cycle length which reduce wait times.
- Eliminate the need for push buttons to initiate the walk signal where appropriate.
- Test improved signage and pavement markings to alert for pedestrian-turning vehicle conflicts at potentially high conflict intersections with concurrent pedestrian phasing (per December 1996 ITE article) as shown below.



- Between Franklin Street and Myrtle Street, sidewalk replacement and curb ramp installation should be a high priority to attain compliance with ADA. Currently old curb cuts/driveways introduce curbs without ramps and are not handicap accessible. Many intersection corners do not have curb ramps.

Bicycle Recommendations

While location specific bicycle-specific recommendations are being made within this plan there are a number of bicycle-related guidelines to consider during design and implementation.

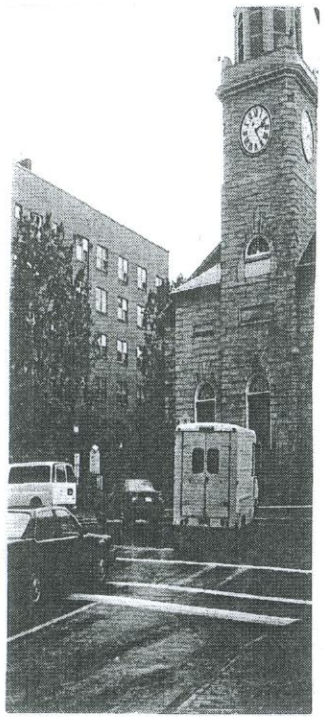
- The outside curb lane should provide for a minimum of 14' (15' ideal) to provide a wide curb lane bicycle facility. This width allows a bicyclist and motorist to share the travel lane and doesn't require the motorist to cross the centerline to pass the cyclist. Through-travel lanes at intersection approaches should also be a minimum of 14' to provide continuity through intersections and reduce bicyclist-motorist conflict.
- Locations with curb extensions should provide a minimum of 14' between the curb extension and the road centerline to provide continuity of the wide curb lane.
- Traffic signal phasing should provide adequate clearance times for bicyclists.
- Loop detectors, when replaced or installed, should be configured to provide detection of bicycles.

- Short and long term bicycle storage should be increased in the downtown.

Traffic Signal Analysis and Recommendations

Pedestrian Phasing

At each of the signalized intersections within the study area recommendations relative to the appropriate pedestrian phasing was identified. In general, recommendations are directed toward providing concurrent pedestrian phasing with pushbuttons at all study intersections. At heavy crossings, traffic signal phasing has been altered to ensure pedestrians cross with little or no conflict. The basis for this recommendations is: pedestrian phasing consistency, which should reduce confusion; pedestrian non-conformance at existing exclusive locations; and the ability to reduce intersection capacity due to improved vehicle operations. A summary of each location is provided below.



- *Temple Street/Middle Street/Spring Street/Union Street* – It is recommended that this location continue to operate under concurrent pedestrian phasing. Streetscape and pedestrian improvements should enhance pedestrian conditions. No existing pedestrian safety deficiencies were identified at this location.

- *Congress Street/Temple Street* – This location is perceived to be unfriendly for pedestrians due to significant wait times. An exclusive pedestrian system is currently provided. Three vehicle phases are also provided. During the westbound Congress Street phase no pedestrians are allowed to cross. The cycle length is long and therefore requires a long wait time. Additionally, pushbuttons are provided, but some pedestrians are unaware of their existence. A concurrent pushbutton system is also recommended at this location. This phasing does present vehicle/pedestrian conflicts with heavy movements from Temple Street and should be monitored and returned to an exclusive phase if deemed necessary.

- *Congress Street/Elm Street* – A pushbutton actuated phasing system is recommended. Pedestrians will be allowed to cross Elm Street during the Congress Street phase (not the protected left-turn phase). When crossing Congress Street all vehicles will be required to stop, thus functioning as an exclusive pedestrian phase. In fact pedestrians will be allowed to cross Elm Street during this phase. This proposal will shorten the wait time for crossing Elm Street significantly, and maintain the unopposed crossing of Congress Street.

- *Congress Street/Preble Street* – A concurrent pushbutton system is also recommended at this location. Pedestrians can cross Preble Street during the Congress Street phase without conflict. When crossing Congress Street pedestrians will walk during the Preble Street phase. This does present vehicle/pedestrian conflicts with heavy movements from Preble Street and should be monitored and returned to an exclusive phase if deemed necessary.

- *Congress Street/Brown Street* – Based upon past traffic signal warrant studies conducted at this location, it is suggested that the traffic signals be removed. To assist pedestrian crossing supplemental signing should be provided (similar to Oak Street).

- *Congress Street/Casco Street* – It is recommended that the signal system provide concurrent pedestrian phasing. Pedestrian crossing Casco Street will do so with conflict from Westbound Congress Street right-turns (low volume movement). When crossing Congress Street, pedestrian will be in conflict with traffic turning from Casco Street, but still relatively low movements.

- *Congress Street/Forest Avenue* – A concurrent pushbutton system is also recommended at this location. Pedestrians can cross Forest Avenue during the Congress Street phase with conflict from westbound Congress Street right-turns only. When crossing Congress Street pedestrians will walk during the Forest Avenue phase. This does present vehicle/pedestrian conflicts with heavy movements from Forest Avenue and should be monitored and returned to an exclusive phase if deemed necessary.

- *Congress Street/High Street/Free Street* – It is recommended that the exclusive pedestrian phase be replaced with a concurrent system. However it is also recommended that the signal phasing be revised to account for heavy pedestrian crossings. Only one crossing occurs that is in conflict with vehicles, the High Street northerly approach. The following summarizes the proposed phasing.
  - Phase 1 – Eastbound Congress Street/Pedestrians cross south side High Street approach.
  - Phase 2 – Congress Street phase/pedestrians cross both High Street approaches
  - Phase 3 – High Street Phase/no pedestrian crossings
  - Phase 4 – High Street through Phase/Pedestrians cross Congress Street.

- *Congress Street/State Street* – No changes are proposed. Significant geometric and streetscape improvements are recommended that attempt to improve the pedestrian environment.

- *Congress Street/Pearl Street* – It is recommended that the proposed signal system provide concurrent pedestrian phasing with push buttons.

- *Congress Street/Franklin Arterial* – It is recommended that the current pedestrian phase remain. However, it is suggested that pushbuttons be provided and when activated, pedestrian are guaranteed adequate crossing time when walking along Congress Street across both Franklin Arterial directional legs.

For signalized intersections within the study area, it is suggested that pedestrian "count-down" signals be installed. Count-down signals provide information to pedestrians on the amount of time remaining for the current phase.

Cycle Length

Cycle length is the number of seconds required for one complete sequence of signal phases. The cycle length of a traffic signal is based upon many factors including geometric conditions, traffic volumes, signal phasing, and coordination with other nearby signalized intersections. In the Downtown study area, cycle lengths are generally 70 to 100 seconds long. In respect to pedestrians, their time wait to cross an intersection is a function of how long the cycle length is. The longer the cycle length the longer the wait time. The City is currently conducting an evaluation of traffic signal timings at several signalized intersections. It is suggested that the City consider using cycle lengths that result in lower pedestrian wait times during the conduct of the currently on-going signal study and other future signal timing evaluations.

Demand Responsive Traffic Signals

Many of the study area intersections currently operate in a pre-timed or fixed-timed mode. This type of traffic signal operation is inefficient and can lead to unnecessary vehicular delay, fuel consumption, air pollution, and pedestrian wait time. Accordingly, it is recommended that vehicle loop detectors be installed at pre-timed signal locations. It

should be noted that the City is in the process of upgrading some of the traffic signals in the study area to incorporate a demand responsive system.

Implementation Strategy Transportation

The recommendations outlined in this section represent a significant investment for the City of Portland and are likely to be implemented over many years. Clearly some of the transportation recommendations are directed at more immediate needs as it relates to safety and operating deficiencies. Recognizing budget limitations the following recommendations have been identified for immediate short-term low-cost implementation.

Temple/Middle/Union/Spring
- Alter flash time

Congress/Elm
- Restripe Congress Street for left-turn lane
- No Stopping signing
- Curb extension

Congress/Forest
- Retiming of traffic signal

Congress/High
- Pedestrian phasing recommendations
- Retiming of traffic signal

Congress/Pearl
- Install new traffic signal
- Alter flash time
- Implement curb extensions

Congress/Franklin
- Signal Phasing
- Curb ramps

Bus Stops
- Field trial test

Pearl Street
- Create on-street parking

Temple Street
- Create on-street parking

High Street
- Create on-street parking

Existing Parking
- Revise parking restrictions

V. RECOMMENDATIONS STREETSCAPE

Framework for Streetscape Recommendations

The framework for improvements to the Portland downtown streetscape directly evolve from the strength of existing node-path relationships within the study area. By improving the physical and social qualities of the nodes and paths, a legible and vital streetscape environment can emerge. As indicated in the analysis, some segments of the study area are in greater need of improvement than others. Additionally, certain segments are of a higher priority for improvement due to their geographic location within the downtown. Thus, a definition of the extents and limits of the proposed streetscape improvements is necessary in order to lend some prioritization.

Four major nodes were identified during the analysis to be of particular potential to the improvement of the legibility and vitality of the downtown pedestrian environment (fig. V-1). They are:

Longfellow Square	(*corner of Congress and State Streets*)
Congress Square	(*corner of Congress and High Streets*)
Monument Square	(*confluence of Congress, Preble and Elm Streets*)
Lobsterman's Plaza	(*corner of Middle and Temple Streets*)

A fifth, potential node was identified at the Maine Savings Bank Plaza, on Congress Street between Brown and Casco Streets. Although privately owned, future development of this plaza is encouraged because of its location midway between Monument Square and Congress Square. The corridor connecting the two Squares is currently the longest distance between nodes within the treatment area. The development of the plaza would act to reinforce the strength of this corridor.

The location of these nodes determined that the path most critical to the legibility of the downtown is along Congress Street between Longfellow Square and Monument Square, from Monument Square to City Hall, and from Monument Square to Lobsterman's Plaza at Temple and Middle Streets (by way of the pedestrian mall) (fig. V-2). This corridor should be the highest priority for streetscape improvements and is referred to as the "primary" treatment area.

SUMMARY: NODES RECOMMENDED FOR IMPROVEMENT

DOWNTOWN PORTLAND
TRAFFIC & STREETSCAPE STUDY
PORTLAND, MAINE

RICHARDSON & ASSOCIATES
LANDSCAPE ARCHITECTS

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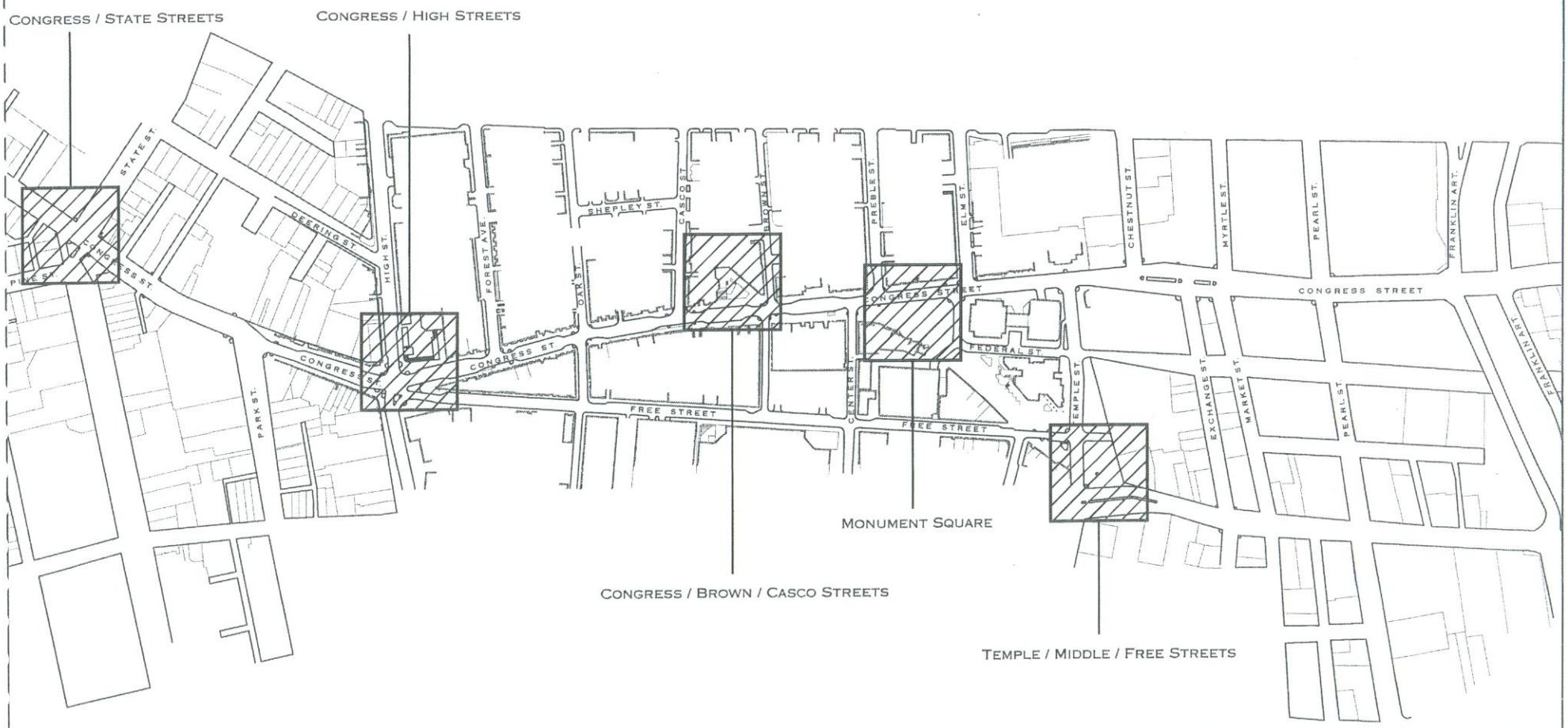


Figure V-1

Composite Streetscape Concept Plan

- Linking of Nodes and Corridors
- Extents and Limits of the Treatment Area
- Hierarchy of Primary and Secondary Streetscape Treatments

Key

Node

Primary Treatment

Secondary Treatment

Blended Treatment

Downtown Portland
Traffic & Streetscape Study
Portland, Maine

Richardson & Associates
Landscape Architects

0 150' 300'

A "secondary" treatment area was identified that will eventually receive streetscape improvements to a more abbreviated extent than the primary corridor. This secondary treatment area includes side streets perpendicular to Congress Street between Cumberland Street and Spring Street, as well as the portion of Congress Street between City Hall and Franklin Arterial. The importance of the secondary treatment is its potential to draw visitors into the downtown area from feeder streets. (The topography of downtown Portland supports this funneling effect, as Congress Street extends along a ridge, and all entrance points into the City are located at lower elevations surrounding this ridge.) Many amenities, including parking structures and significant civic buildings, are located along these side streets. The streetscape treatments within the secondary treatment area will reinforce the inclusion of these streets and structures within the downtown business and arts communities.

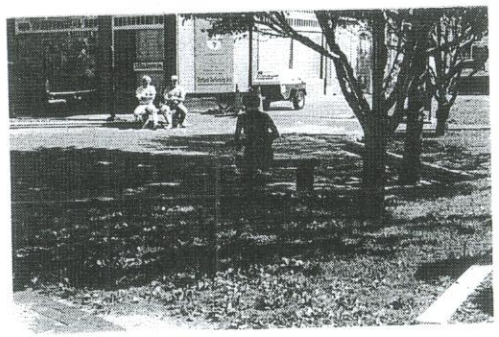
The decision to classify a portion of Congress Street as a secondary treatment area was based on the current lack of vitality in the vicinity of Franklin Arterial and Congress Street. While Franklin Arterial is one of the most heavily traveled roads entering the downtown, it creates a vacuum between two important communities—the downtown and the East End. Although it will be important to create some sort of 'gateway' to signal vehicular visitors of their entrance into the downtown, it would be naïve to think that pedestrian-focused street furnishings in this area will create a lively street culture.

The portion of Middle Street between Exchange Street and Temple Street is classified as a "blended" treatment area. Blended treatments occur at transition zones between two districts—in this instance between the Old Port and the downtown. Elements from each district's streetscape palette should be incorporated to reinforce the transition. As new districts emerge at the fringes of the study area this type of blended treatment may be employed as a way of encouraging dialogue between shifting communities.

Node Recommendations

Although the scope of this study does not involve design development for the improvement of nodes within the study area, conceptual recommendations have been put forth which suggest directions for future development.

Congress Street / State Street



The intersection of Congress Street and State Street at Longfellow Square offers a lot of potential for improvement of both traffic and streetscape (fig. V-3). The location of this node at one edge of the downtown suggests the possibility of creating a "gateway" that would celebrate one's arrival into the downtown and create a transition between the downtown and the adjacent West End neighborhood. The traffic modifications suggested by Wilbur Smith Associates have created the possibility for improved pedestrian-oriented spaces within Longfellow Square. The following recommendations suggest priority recommendations for improvement of this area :

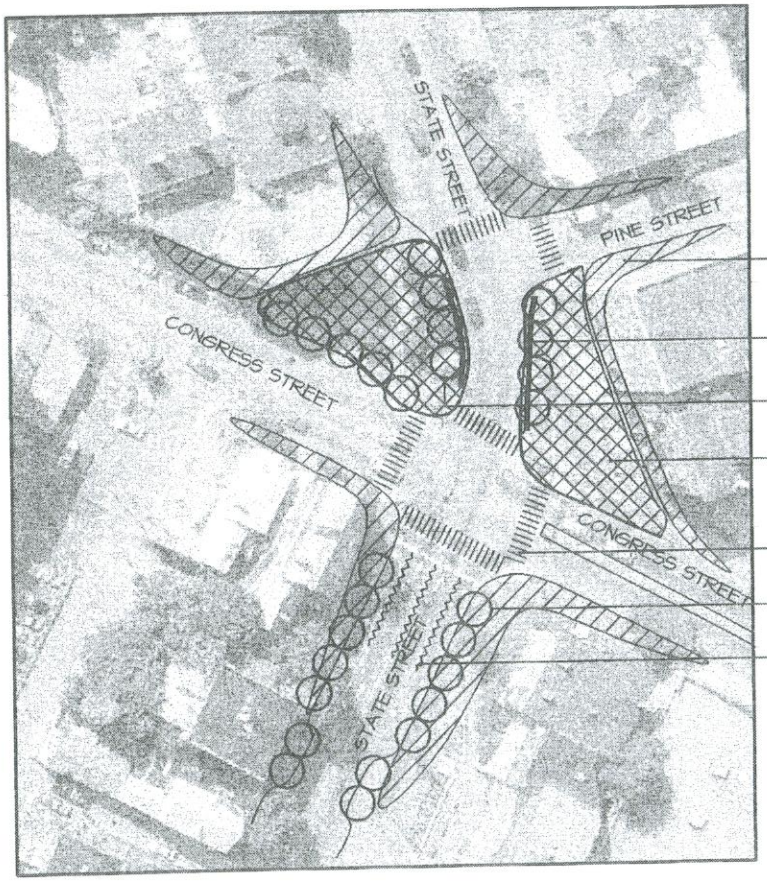
- The removal of the free right turn lane from Congress Street to State Street opens the possibility of additional outdoor gathering space within this intersection. The design of this space should be coordinated with the redesign of the existing Longfellow Square open space to create a unified design vocabulary that will become a gateway into the downtown.
- Physical barriers should be implemented at the State Street edges of these open spaces to reinforce pedestrian circulation routes and discourage mid-block crossing at this dangerous intersection. These barriers must be designed in a way that will not alienate pedestrians or encourage vehicles to increase their speed within the intersection.
- Streetscape improvements should be made at all edges within the intersection to create visual and functional unity.
- Urban tolerant street trees should be planted along State Street and within Longfellow Square to beautify the intersection and increase pedestrian shelter.
- Textured lane dividers should be considered as a way to guide traffic and increase safety for pedestrians.
- The City should explore the idea of restroom facilities in the square, possibly in conjunction with businesses that have restrooms that would allow the public to use them in a limited manner.

NODE RECOMMENDATIONS

CONGRESS / STATE STREETS

DOWNTOWN PORTLAND
TRAFFIC & STREETSCAPE STUDY
PORTLAND, MAINE

RICHARDSON & ASSOCIATES
LANDSCAPE ARCHITECTS



TREATMENTS REACH OUT TO ALL EDGES OF INTERSECTION

STRONG EDGES SHOULD REINFORCE PEDESTRIAN CIRCULATION ROUTES AND DISCOURAGE MID-BLOCK CROSSING

PLANT STREET TREES AT PLAZA FOR BEAUTY AND SCALE

UNIFY LONGFELLOW SQUARE WITH ENLARGED OPEN SPACE AREA

PERMANENT MATERIAL CROSSWALKS

STREET TREES SHOULD BE USED TO DECREASE SCALE OF STREET

ADD TEXTURED LANE DIVIDERS

- TREATMENT SHOULD INCLUDE A GATEWAY
- NEW STREET LIGHTS AT CONGRESS SQUARE SHOULD BE EXTENDED TO LONGFELLOW SQUARE
- PROVIDE SITE GRAPHICS TO NAME/IDENTIFY OPEN SPACES FOR WAYFINDING PURPOSES
- PROVIDE PUBLIC RESTROOMS

Figure V-3

Congress Street / High Street

The confluence of Congress Street, High Street and Free Street at Congress Square is currently a locus for arts-related activities in downtown Portland. The presence of the Portland Museum of Art, the Children's Museum, the Portland Stage Company and other arts-related entities within a short geographic distance from Congress Square creates an ideal opportunity to showcase the role of the arts in downtown Portland. It is also one of the most important vehicular entry points within the downtown, being directly linked to I-295 by way of High Street. The following recommendations center on improving the character of Congress Square as the heart of the Arts District (fig. V-4). The Advisory Committee expressed its interest in continuing conversations with Congress Square stakeholders regarding recommendations in this area.

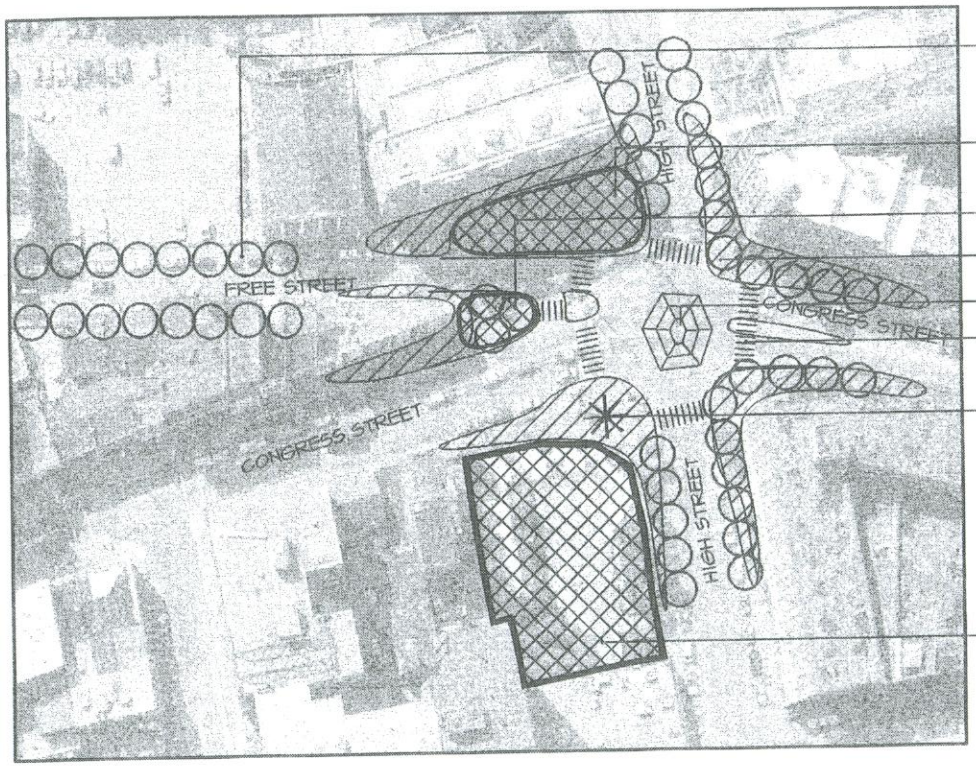
- Redesign the public plaza within Congress Square to:
  - -update the physical amenities
  - -provide an open space that works well whether or not performances are happening
  - -address scale issues associated with the architecture of adjacent buildings
  - -emphasize the role of the arts
  - -add storage space for performances
  - -consider operating a public restroom which would serve the downtown
  - -allow a direct link between the adjacent restaurant space (currently occupied by The Kitchen) and the plaza
- Incorporate public art of significance within Congress Square. This recommendation should be reviewed by the Public Art Committee
- Improve amenities in front of the Portland Museum of Art to relate stylistically to the amenities within Congress Square
- Capitalize on the potential for outdoor gathering space in front of the Hay Building. This will help to link outdoor space at the Portland Museum of Art with that at Congress Square
- Streetscape improvements should be made at all edges within the intersection to create visual and functional unity
- Consider a unique lighting treatment as "placemaker art" which reinforces the presence of the identity of the Square
- Consider artist-designed street furnishings to reinforce a unique and art-related identity
- Plant urban tolerant street trees along High Street and within the square to improve the scale of the open space and unify the visibility of the street corridor
- Implement textured crosswalks for heightened pedestrian safety

NODE RECOMMENDATIONS

CONGRESS / HIGH / FREE STREETS

DOWNTOWN PORTLAND
TRAFFIC & STREETSCAPE STUDY
PORTLAND, MAINE

RICHARDSON & ASSOCIATES
LANDSCAPE ARCHITECTS



OVERALL:
CREATE STRONG VISUAL CLUES TO DRAW PEOPLE FROM MUSEUM TO PLAZA/PARK

ADD URBAN TOLERANT STREET TREES, ALONG FREE STREET AND THROUGHOUT SQUARE, OF CONSISTENT TYPE AND AT REGULAR INTERVALS TO IMPROVE SCALE AND UNITY OF THE STREET

IMPROVE AMENITIES AT MUSEUM PLAZA TO RELATE TO OTHER PROPOSED AMENITIES

IMPLEMENT NEW OUTDOOR GATHERING SPACE

TREATMENTS REACH OUT TO ALL EDGES OF INTERSECTION

PAVING TREATMENT AT CENTER OF INTERSECTION

PERMANENT MATERIAL CROSSWALKS

PUBLIC ART OF SIGNIFICANCE INCORPORATED INTO SPACE (CONSIDERATION OF THIS LOCATION DUE TO VISIBILITY OF CORNER UP AND DOWN CONGRESS STREET)

CONGRESS SQUARE:
-EMPHASIS ON ARTS
-CREATE OPPORTUNITIES FOR A SUCCESSFUL SPACE NOT DEPENDENT ON PROGRAMMED USES
-PHYSICAL IMPROVEMENTS IN GREAT NEED
-STRENGTHEN RELATIONSHIPS TO RADISSON HOTEL
-CREATE MORE DIRECT LINK BETWEEN KITCHEN RESTAURANT AND CONGRESS SQUARE
-MAKE VISUAL AND POSSIBLY PHYSICAL CONNECTION TO ADJACENT BUSINESSES
-ADDRESS SCALE ISSUES ASSOCIATED WITH ARCHITECTURE OF ADJACENT BUILDINGS
-DESIRABLE FACILITIES TO INCLUDE:
1. PUBLIC REST ROOM
2. STORAGE FOR PERFORMANCES
3. STAGE THAT IS NOT PERCEIVED AS A STAGE DURING NON-PERFORMANCE TIMES

Figure V-4

Congress Street / Casco Street / Brown Street

As stated in the previous section, the development of a new node between Congress Square and Monument Square will create pedestrian momentum along this lengthy section of the corridor. As there are no existing opportunities for new public open space in this area, the consultant has recommended the further development of an existing, privately owned parcel of open space between Casco and Brown Streets. Two options for rethinking this space were developed (fig. V-5). Both options pursue the idea of creating a focal element at the street level in front of the seating area. The intent is that the focal element-- a fountain or piece of public art, for example--would increase the visibility of this node from both Congress Square and Monument Square and add to the "pull" along this lengthy stretch of Congress Street.

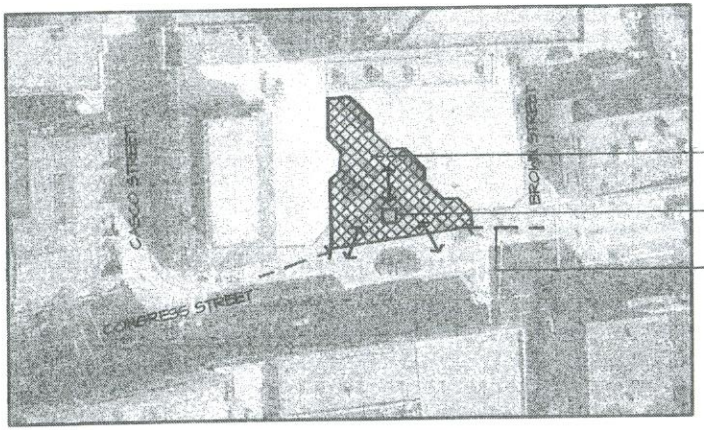
One option explores the idea of sinking the currently raised seating area to provide less of a physical and psychological barrier to passing pedestrians. In this option the focal element would be contained within the seating area. The second option shows a slight modification to the existing seating area which would create some space at the street level for the installation of a focal element.

Monument Square

Monument Square plays a unique role in the downtown by being the largest paved, outdoor gathering space for public events. When not filled with people, however, the success of the plaza is questionable. The recommendations for this area focus on finding a balance between improving pedestrian-scaled gathering opportunities while maintaining a flexible space that allows large gatherings to occur (fig. V-6).

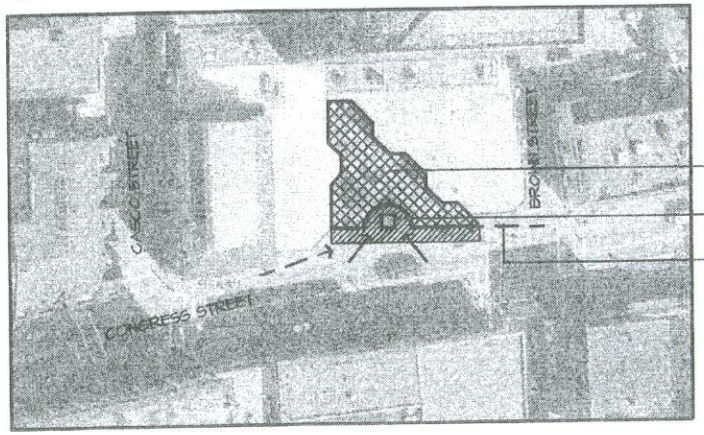
- Strengthen the connection between Monument Square and the Portland Public Market by improving signage and pedestrian crossing points
- Pedestrian circulation is often too strongly guided by the thick double-row of trees between Monument Square and the adjacent storefronts. Editing and/or changing the species of trees to reduce the density of the canopy would reduce the power of the trees as a divisive edge to the space
- Improve both the quality and the location of seating to encourage gathering
- Remove the bronze-colored "telephone mushroom"
- Strengthen the edge of the Square along Congress Street to clarify legitimate pedestrian crossings between Monument Square and the Public Library
- Improve the quality of the pedestrian scale lighting at the MaineWay pedestrian mall

NODE RECOMMENDATIONS	CASCO / BROWN / CONGRESS STREETS	DOWNTOWN PORTLAND TRAFFIC & STREETSCAPE STUDY PORTLAND, MAINE RICHARDSON & ASSOCIATES LANDSCAPE ARCHITECTS



OPTION ONE

- LOWER PLAZA TO STREET LEVEL
- INSTALL FOCAL ELEMENT AT STREET LEVEL
- VISIBILITY UP/DOWN CONGRESS STREET



OPTION TWO

- RETAIN PLAZA AT UPPER LEVEL
- INSTALL FOCAL ELEMENT AT STREET LEVEL
- VISIBILITY UP/DOWN CONGRESS STREET

- PROVIDE SITE GRAPHICS TO NAME/IDENTIFY THE PLAZA FOR WAYFINDING PURPOSES

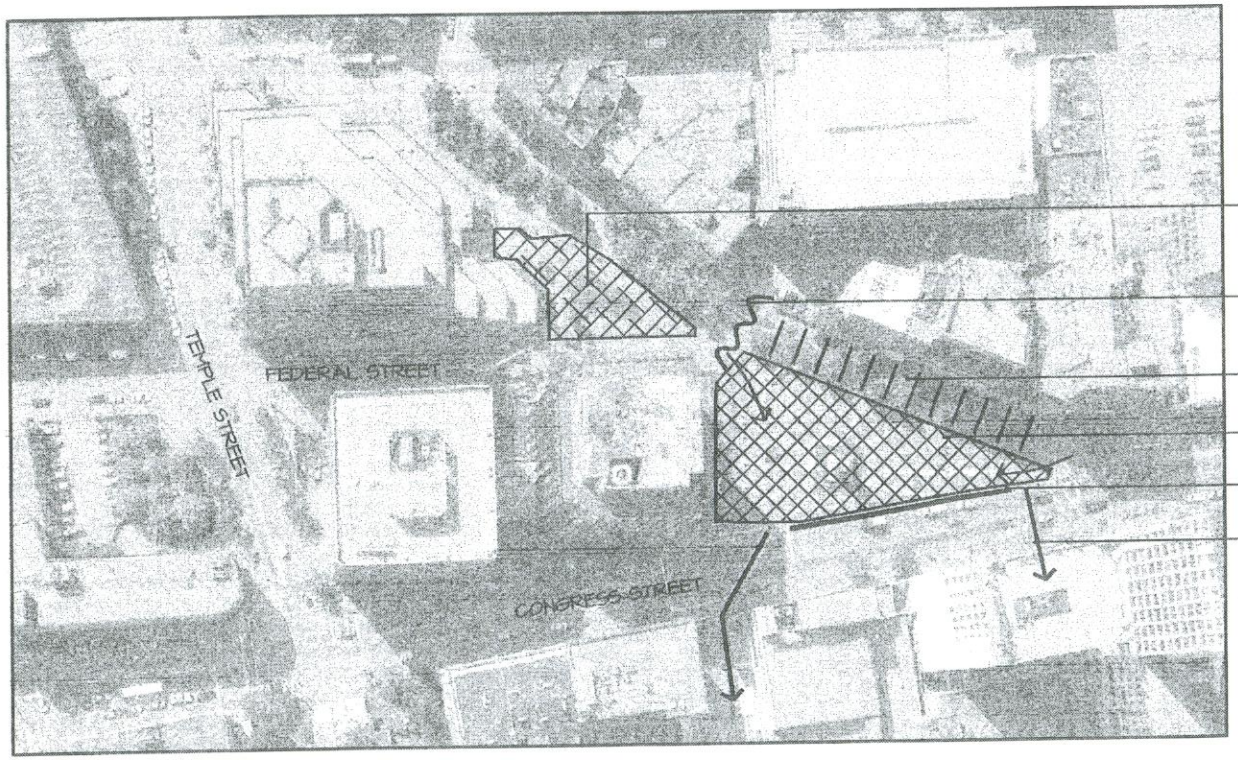
Figure V-5

NODE RECOMMENDATIONS

MONUMENT SQUARE

DOWNTOWN PORTLAND
TRAFFIC & STREETSCAPE STUDY
PORTLAND, MAINE

RICHARDSON & ASSOCIATES
LANDSCAPE ARCHITECTS



LINK ONE CITY CENTER PLAZA WITH MAINEWAY TREATMENTS-- EMPHASIZE ENTRANCE TO ONE CITY CENTER

ESTABLISH GATEWAY/THRESHOLD BETWEEN MONUMENT SQUARE AND MAINEWAY PEDESTRIAN MALL

EDIT TREES / CHANGE SPECIES AT EDGE OF SPACE TO REDUCE DENSITY OF CANOPY AND REDUCE THE TREES' ROLE AS AN EDGE

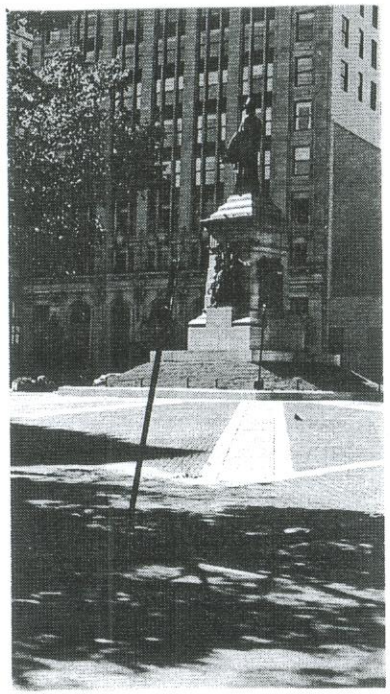
ENCOURAGE DISPERSAL OF USE WITHIN MONUMENT SQUARE PLAZA

STRENGTHEN EDGE TO ELIMINATE MID-BLOCK PEDESTRIAN CROSSING

STRENGTHEN CONNECTION TO PUBLIC MARKET

- IMPROVE SEATING QUALITY TO ENCOURAGE PEOPLE TO INHABIT SPACE
- IMPROVE SCALE OF MONUMENT SQUARE WITHOUT JEOPARDIZING SIZE OF OPEN SPACE
- IMPROVE LIGHTING TO BE OF A SIMILAR STYLE AND QUALITY AS OTHER AMENITIES
- PROVIDE SITE GRAPHICS TO NAME/IDENTIFY OPEN SPACES FOR WAYFINDING PURPOSES
- PROVIDE PUBLIC RESTROOMS

Figure V-6



- Establish a gateway between Monument Square and the MaineWay pedestrian mall
- The City should explore the idea of restroom facilities in the square, possibly in conjunction with businesses that have restrooms that would allow the public to use them in a limited manner.

Temple Street /Middle Street / Free Street

The confluence of Temple, Middle and Free Streets is important as the transition zone between the Old Port and the downtown. The intersection is marked by a paved plaza ("Lobsterman's Plaza") that serves as the physical terminus of the MaineWay pedestrian mall. The plaza suffers from outdated pedestrian amenities and a lack of character. There is a tendency for mid-block crossings to occur between the end of the pedestrian mall and the plaza, as the pedestrian desire line is from one space to the other, too far from the adjacent crosswalks for them to be used. Recommendations for this area include the following (fig. V-7):

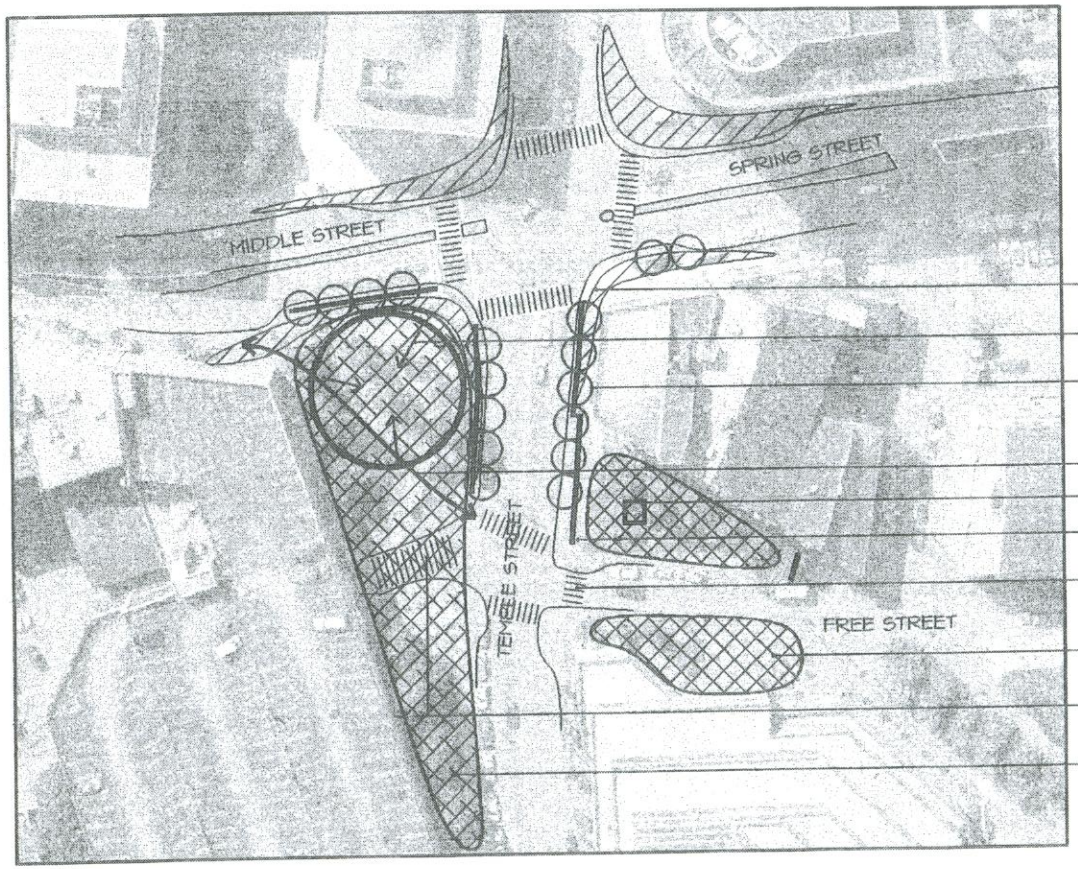
- Redesign the plaza to focus inward, rather than outward onto the street. This will increase pedestrian comfort and enable a stronger pedestrian path to be made between the Old Port and the pedestrian mall. (The raised planters that encircle the existing plaza do not allow free circulation to occur.)
- Create edges at the end of the pedestrian mall and the street sides of Lobsterman's Plaza to discourage mid-block crossings
- Make streetscape improvements at all edges within the intersection to create visual and functional unity
- The greenspace in front of Bagel Works should be visually and/or physically linked to Lobsterman's Plaza by employing a similar vernacular of materials and street furnishings
- Consider a new piece of public art for the terminus of the pedestrian mall which may have a functional use within the new space
- Plant urban tolerant street trees along Temple Street (where width allows) to decrease the scale of the street and provide pedestrian shelter from the sun

NODE RECOMMENDATIONS

TEMPLE / MIDDLE / FREE STREETS

DOWNTOWN PORTLAND
TRAFFIC & STREETSCAPE STUDY
PORTLAND, MAINE

RICHARDSON & ASSOCIATES
LANDSCAPE ARCHITECTS



- PROVIDE SITE GRAPHICS TO NAME/IDENTIFY THE PLAZA FOR WAYFINDING PURPOSES
- TWO TYPES OF EDGES:
  A. INTEGRATED EDGE (PERMEABLE)
  B. BARRIER EDGE (SOLID)

TREATMENTS SHOULD EXTEND TO EDGES OF INTERSECTION AND HAVE A SIMILAR VERNACULAR

PLAZA SHOULD HAVE INTERIOR FOCUS

PLANT STREET TREES TO MODIFY THE SCALE OF THE STREET

EMPHASIZE PEDESTRIAN ROUTE THROUGH PLAZA TO OLD PORT

CONSIDER NEW PUBLIC ART

IMPLEMENT STRONG EDGES TO GUIDE PEDESTRIAN CIRCULATION

PERMANENT MATERIAL CROSSWALKS

LINK LOWER MAINEWAY TREATMENT TO THAT AT ONE CITY CENTER

PAVEMENT TEXTURE CHANGE AT GARAGE ENTRANCE SHOULD RELATE TO PLAZA PAVING TREATMENT

LINK EXTERIOR SPACES BY USING A SIMILAR VERNACULAR OF MATERIALS

Figure V-7

Corridor Recommendations

Amenity Types

Streetscape improvements along the primary and secondary corridors differ from those at the nodes in that the focus is on a consistency of treatment, rather than a celebration of the uniqueness of a specific space. As highlighted in the analysis, there is currently no consistent strategy for placement of amenities within the Congress Street corridor. A strategy needs to be implemented which considers the functional needs of the streetscape environment as well as the maintenance parameters.

Certain types of amenities function better in a streetscape environment when grouped with amenities of similar type. Other amenities function independently of others. Still other amenities are only appropriate in specific situations and need to be selected on an "as needed" basis. These three types of amenities form the framework for corridor improvement recommendations (fig. V-8).

Continuous Interval

Continuous interval amenities are classified as those that function independently of others but that need to be placed at a continuous interval in order to be effective both visually and functionally. Examples of this type are street trees, street lighting, waste receptacles and sidewalk paving.

Street Trees

The importance of consistently planted and well maintained street trees within the downtown area cannot be overstated. Street trees have often been credited as being the single most important characteristic of a successful urban street. They contribute color, scale, texture, shelter and visual unity. Street tree species need to be carefully selected for tolerance to heat, smog, salt, dehydration and root compaction. The species selected need to be planted in consistent groupings and close enough to one another to provide visual unity. It is recommended that street trees be planted at a consistent spacing of 25'-30' along the entire length of the primary treatment corridor, and that large blocks of similar species be used. Tree species selected should be urban tolerant, deciduous, reach a mature height of at least 35', and exhibit an upward branching structure. Street trees are also recommended for the secondary treatment corridor, where possible.

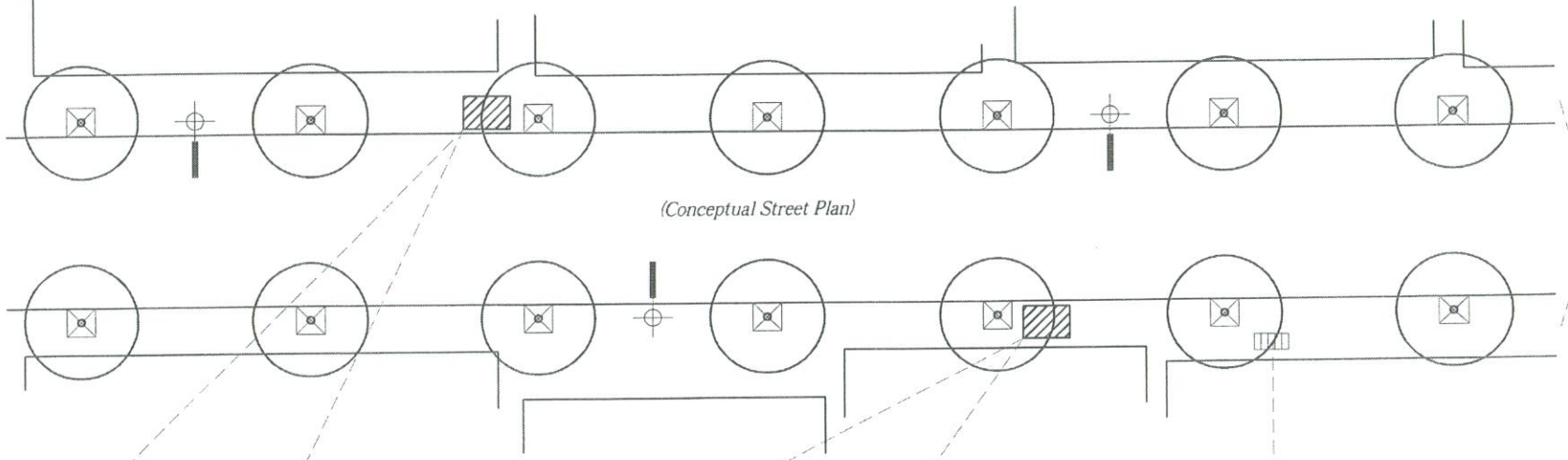
STRATEGY FOR TREATMENT OF STREETSCAPE

KEY

- Street Tree / Tree Pit
- Street Light w/Banner
- Waste Receptacle
- Mailbox / Newspaper Box
- Public Telephone
- Bench
- Planter
- Drinking Fountain
- Bicycle Rack / Locker

DOWNTOWN PORTLAND
TRAFFIC & STREETSCAPE STUDY
PORTLAND, MAINE

RICHARDSON & ASSOCIATES
LANDSCAPE ARCHITECTS



(Conceptual Street Plan)

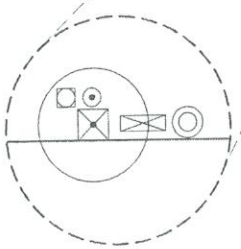
TYPE A:

Continuous Interval

Street Lights
Banners
Street Trees
Tree Grates/Guards
Hanging Planters
Waste Receptacles
Sidewalk Paving

TYPE B:

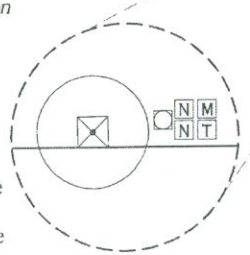
Clusters of Amenities Grouped by Function



Conceptual Representation

Cluster type 'A':
Benches
Waste Receptacle
Drinking Fountain
Planters

Cluster type 'B':
Mailbox
Newpaper Boxes
Public Telephone
Posting Board
Waste Receptacle



Conceptual Representation

TYPE C:

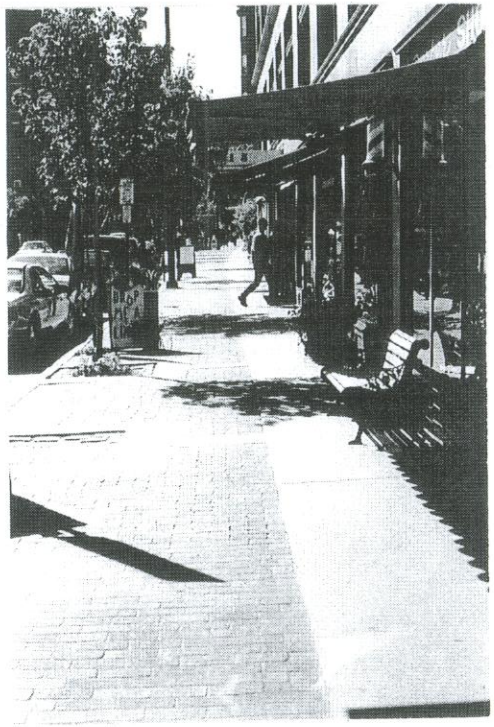
As Needed

Curb Aprons
Crosswalks
Bike Racks/Lockers
Bollards
Public Art
Signage
Kiosks

Compositional Issues:

Color
Texture
Size / Scale
Material
Vandal-proof
Ease of Maintenance
Cost Effectiveness
Ease of Use
Style/Vernacular

Figure V-8



Probably the most important factor in creating a successful environment for street trees is a well-conceived installation and maintenance program. Since the City of Portland shares the responsibility for maintaining street trees in the downtown area among several groups, the need for a program that will lend overall structure is paramount. This program should outline the role of each responsible party for each task, including but not limited to the following:

- *-planting* (tree pit design, tree species selection)
- *-pruning*
- *-watering*
- *-fertilization*
- *-aeration*
- *-tree pit/grate maintenance*
- *-tree guard maintenance*

Tree grates are an example of an amenity that is greatly affected by the quality of installation and maintenance. The soil surrounding the root ball in a tree pit is often compacted insufficiently, causing the finish grade to settle and the tree grate to sink. Conversely, when tree pit size is insufficient a tree's roots will push out of the soil in their search for moisture and air, pushing the tree grate inches above the surrounding pavement. When this occurs, a trip hazard liability is present. The solution is to design an adequate growing space and proper planting techniques when the tree is first planted and installing high quality grates that allow room for growth of the tree trunk. Tree grates are recommended for all street trees within the primary treatment corridor to improve the visual unity of the sidewalk paving and to reduce compaction of the soil at the base of the tree. The trunk opening should be generous, even if the tree is small, to allow for future growth without having to break the tree grate, as well as to allow water and fertilizer injections to occur.

One practice that often results in healthier street trees is a continuous, linear tree pit. The continuous pit gives the tree a more generous space in which to extend its roots. The width of sidewalks in downtown Portland, as well as the snow removal and salting practices, would probably not make this a feasible alternative. However, a continuous tree pit below the sidewalk paving can still be achieved if proper techniques are used. A continuous subgrade trench-- if installed properly-- allows tree roots, irrigation, fertilization and aeration to happen in a single corridor at a consistent distance from the back of the curb. This consistency simplifies the maintenance of the system in the event of failure.

Lighting

The City of Portland has begun to install new light fixtures in the vicinity of Congress and Monument Squares. It is recommended that this fixture become the standard for the

downtown and that the fixtures be installed according to plans furnished by Enterprise Engineering. These plans encompass most areas within the primary and secondary treatment corridors. The committee recommends that the geographic limit of the new lights be extended to Congress Street and Franklin Arterial. It is recommended that the City replace the light fixtures at the MaineWay pedestrian mall with a scaled-down version of the Congress Square street light.

The City should consider the installation of hanging planter baskets and banners on each light fixture within the primary treatment corridor. Both elements would create a dynamic visual presence above the level of cars and pedestrians, and reduce the congestion of signage and raised planters at the sidewalk level. Both banners and hanging baskets should be carefully studied for economic feasibility and maintenance needs. Second-rate banners and dying plants would do more harm than good to the downtown's image.

Waste Receptacles

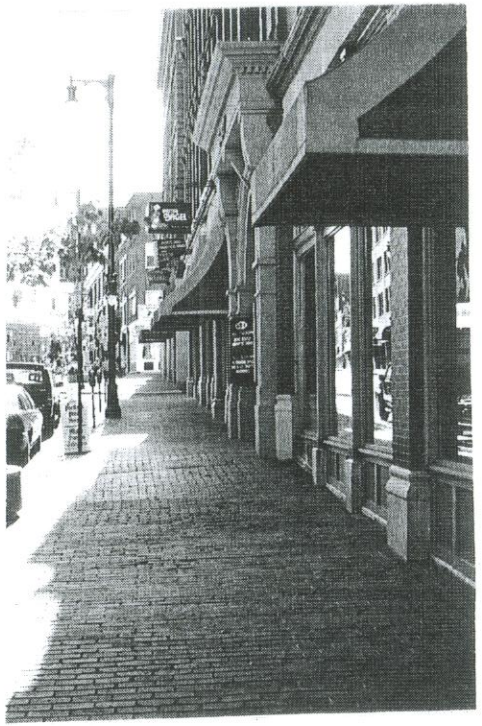
Because of the impact that clean streets have on the perception of the downtown, it is recommended that waste receptacles be located no further than 100' apart along the entire primary treatment corridor and 150' apart along secondary treatment corridors. The exact location and quantity of receptacles should be reviewed with City maintenance workers who are familiar with areas of heavier need. As more buildings prohibit smoking, smokers are moving onto the sidewalks in front of buildings to smoke, creating an increased need for receptacles. It is advised that the City consider waste receptacles with an inlaid ash urn top to provide a more attractive solution in areas where this is a concern.

Clustered Amenities

One shortcoming noted in the analysis of the study area is the way that street furnishings are somewhat arbitrarily placed on the sidewalk, regardless of their relationship to one another and to the life of the street. Certain amenities with related functions can be grouped together in 'clusters' designed to provide a concentrated area of amenities at a consistent interval along the corridor. Two types of amenity clusters are recommended for downtown Portland:

Comfort Cluster

The comfort cluster is characterized by amenities which together create a resting area for pedestrians. These amenities include benches, street trees, planters, waste receptacles and drinking fountains. The exact configuration of elements within the cluster depends on the



available sidewalk width. It is intended that the cluster would occupy the 25' to 30' space between two street trees at specific locations. Two comfort cluster types have been developed:

Type 1 is a deeper version of the cluster and would be located at areas where the sidewalk "bumps out" as it approaches an intersection (fig. V-9). This cluster takes advantage of the extra width by providing two benches which are oriented perpendicular to pedestrian flow. Other elements include raised tree pits, planters, a waste receptacle, and a drinking fountain or newspaper box. The cluster is set apart from the sidewalk with accent paving and protected from the street by pedestrian scale bollards at the curb edge.

Type 2 is a linear version of the cluster which is more suitable for sidewalks with minimal width (fig. V-10). It is designed to occupy the same width as the tree grate of the adjacent street trees (5 feet, in this case). Because of the depth of a bench and sufficient leg room, it would not be feasible to decrease the width much from this design. It includes the same amenities as the Type 1 cluster, but the benches are oriented parallel to pedestrian flow and are placed closer together. Because of the minimal sidewalk width, tree pits cannot be raised in this cluster.

Information Cluster

One of the most frequent pedestrian obstacles noted in the analysis of the study area is newspaper vending boxes. There are currently no regulations regulating their quantity and placement on the sidewalk. Quite often they are chained to other amenities, detracting from that object's usefulness. The information cluster is intended to provide a more organized layout of newspaper boxes in specific areas, as well as include other information-related items such as a mailbox, public telephone, and event posting board (fig. V-11). A waste receptacle is provided for waste generated from newspaper vending boxes.

It will be important to develop a way to organize newspaper vending boxes without eliminating their ability to successfully market the product that is being sold. One idea is to design a semi-transparent structure (like a metal armature) that will contain the boxes but allow their advertisements to remain visible on at least two sides. Another important issue is defining the maximum number of newspaper boxes that will be allowed in a cluster without infringing upon the newspaper's right to sell their product in the most economically viable way. The City will need to meet with newspaper circulation directors throughout the design process to ensure that clear lines of communication are being maintained in this regard.

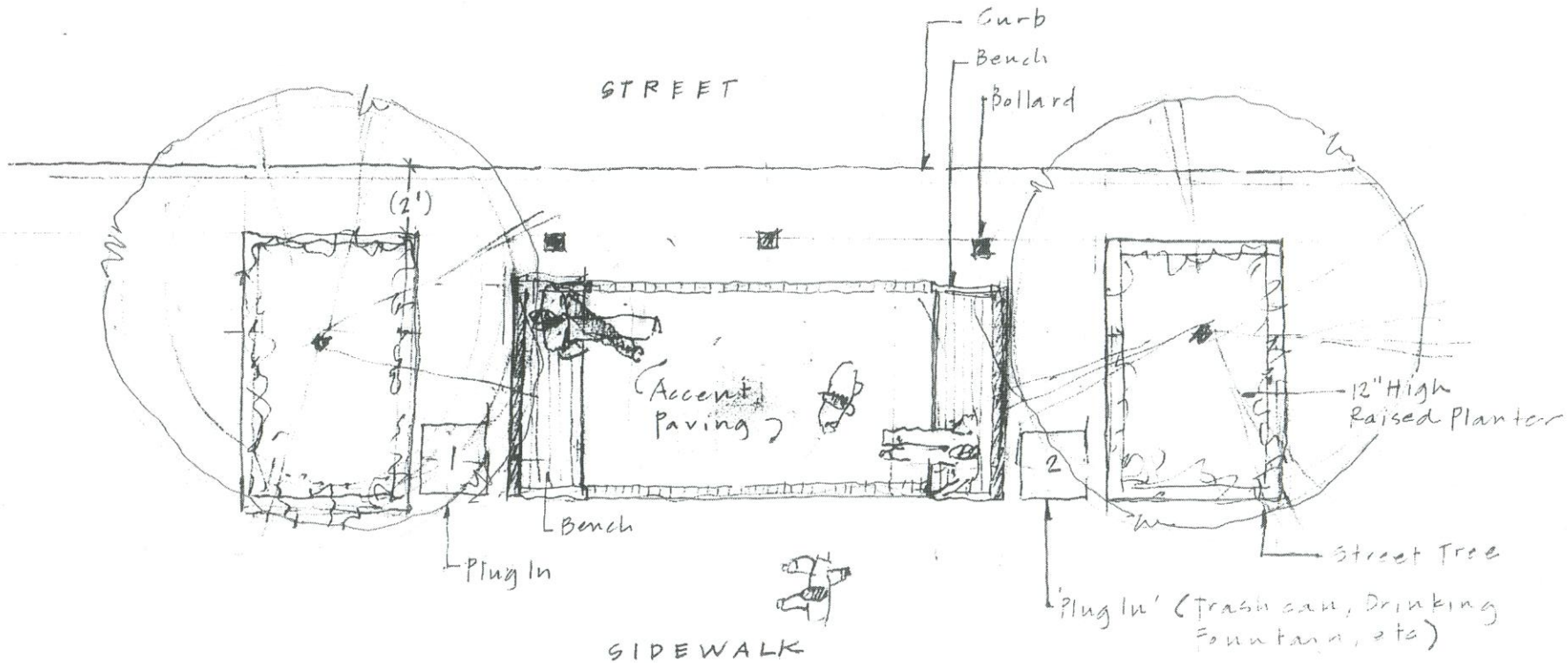


Figure V-9 - Comfort Cluster Type 1

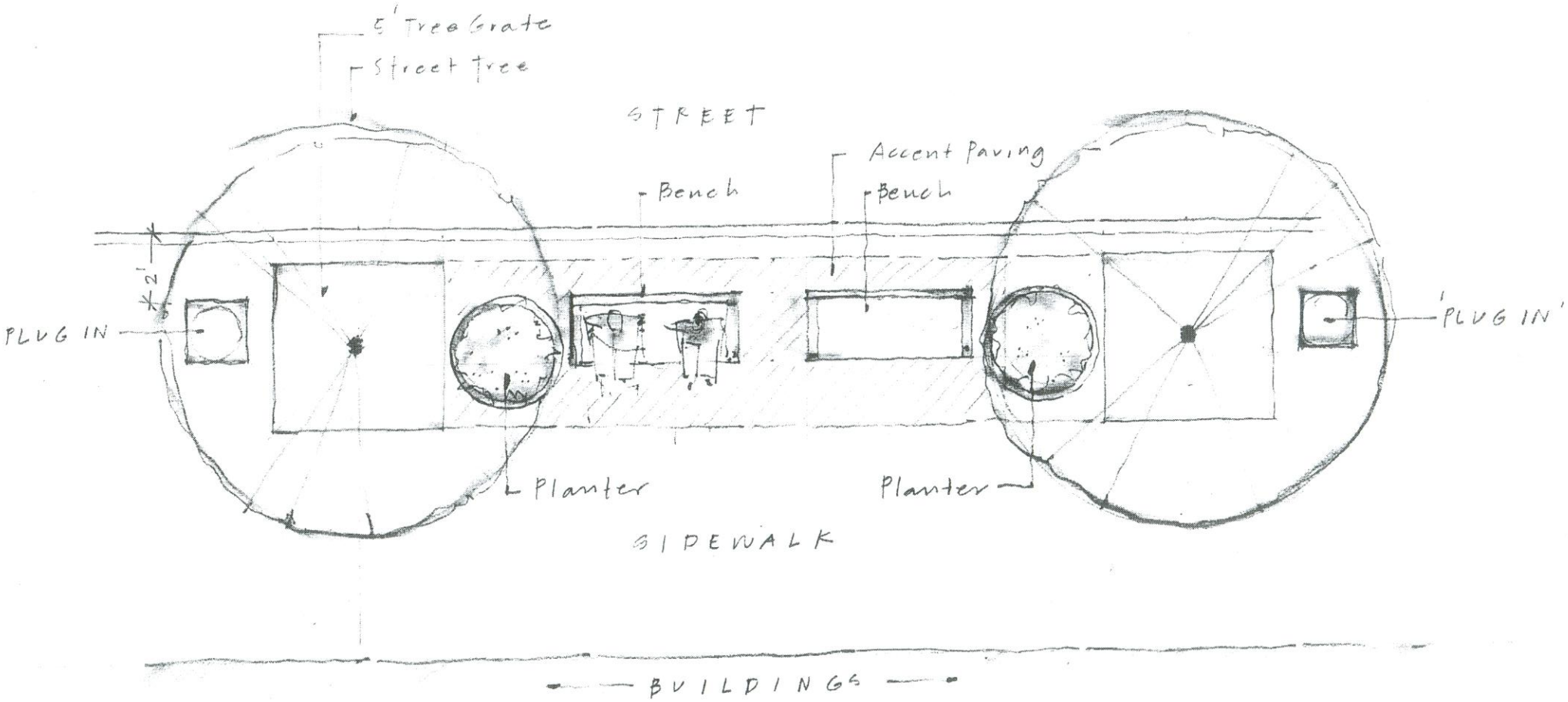


Figure V-10 - Comfort Cluster Type 2

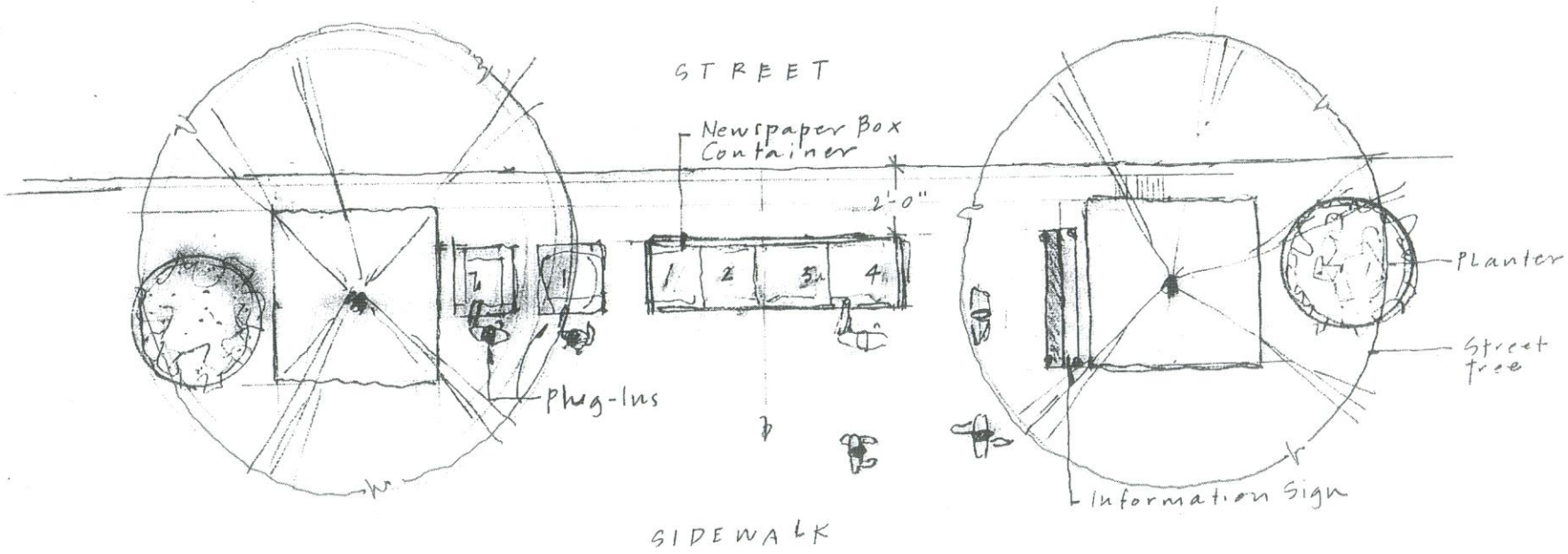


Figure V-11 – Information Cluster

As-Needed Amenities

Certain types of amenities-- bike racks, bollards and public art, for example-- serve a site specific function which must be evaluated on a case-by-case basis.

Bike racks should be located in areas adjacent to civic buildings or public gathering spaces and placed in locations that consider vehicular traffic patterns as well as likely bicycle routes in the vicinity. They should be placed in areas sheltered from the weather, if possible. One recommendation is to provide a small amount of bike storage within downtown parking garages, as these structures are often conveniently located and provide shelter. Bike racks should be selected which provide flexibility for various locking positions and a variety of bike sizes and types.

Bollards are primarily used to separate vehicular traffic from pedestrian areas, and should be used sparingly for best results. Pedestrian-scale bollards (4"-6" diameter) have been recommended for the amenity clusters to reinforce the sense of enclosure within the cluster and to provide protection from vehicles. Larger bollards (10"-14")are recommended at specific nodes as a way to create an edge to focus pedestrian movement at designated crosswalks.

Reinforcement of the Arts District

One of the recommendations contained within the 1995 report *A Plan for Portland's Arts District* states that "a positive urban design should establish a clear sense of the Arts District as a distinct section of the downtown and provide maximum support for the goals of the artistic institutions in the Arts District." This study recommends the following ways that streetscape improvements can reinforce the presence and identity of the Arts District within the downtown:

1. *Establish Congress Square as the heart of the Arts District*
   One of the goals of the 1995 report was to establish Congress Square as the heart of the Arts District. The recommendations for Congress Square highlighted in Section II. of this report clearly support this goal. The following diagram (fig. V-12) illustrates how Congress Square can become the heart of the Arts District, embodying the essence of all arts-related activities within the downtown.
2. *Introduce quality public art into the nodes*
   The nodes are the centers of public gathering in the downtown. By incorporating and celebrating the presence of significant public art within these spaces the importance of the

Framework For Understanding the Study Area

Landmarks

- Points of Reference - Physical Objects Which are External to the Observer

Landmarks are Integral to the Legibility of the City

Key

Landmark

Downtown Portland
Traffic & Streetscape Study
Portland, Maine

Richardson & Associates
Landscape Architects

0 150 300'

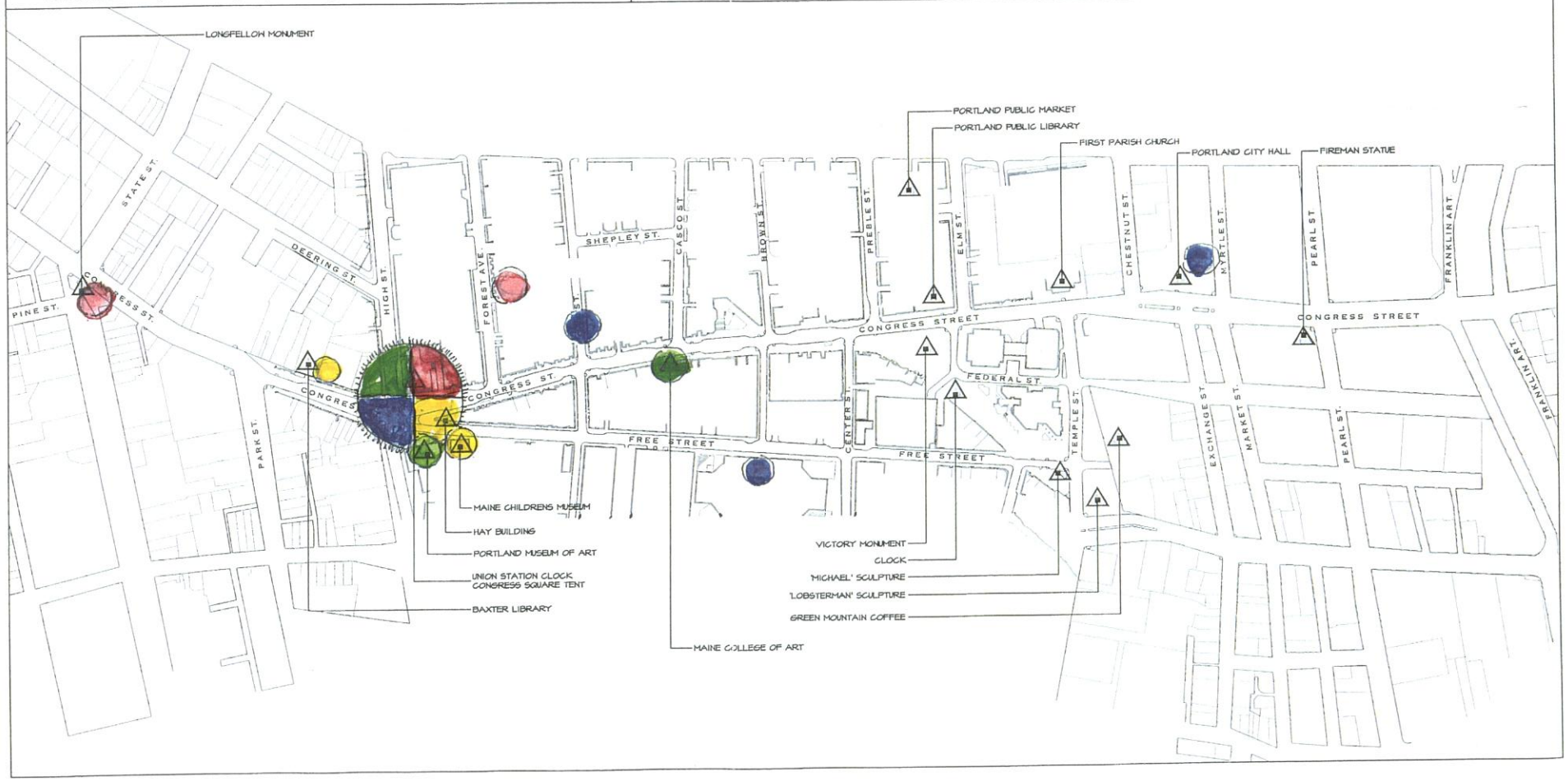


Figure V-12

arts within the downtown will be reinforced. The Public Art Committee should be the official body to review this recommendation.

3. *Implement artist-designed clusters within Congress Square*
By commissioning local artists to design the street furnishings for clusters located in the vicinity of Congress Square, artists are given a chance to exhibit their work in a new way and the heart of the Arts District is reinforced.

4. *Create opportunities for art within each cluster*
Individual artists could be commissioned to design the accent paving within each cluster. This would make every cluster unique and site specific, as well as allow the presence of the arts to be visible throughout the primary treatment corridor that stretches throughout the Arts District.

5. *Select street furnishings that have a unique, creative look*

6. *Implement a wayfinding / signage system that clearly locates and celebrates the Arts District*

7. *Create an iconographic identification marker for arts-related businesses and organizations*
A unique, dynamic marker should be designed which would be erected in front of organizations affiliated with the Arts District. This marker should be clearly identifiable from a distance and able to be seen both day and night. Coordinated with a map of the Arts District at each arts venue, this identification system will reinforce the presence of arts-related organizations-- particularly those that are located at the fringes of the identifiable Arts District.

Site Furnishings Recommendations

The analysis recommended improvements in both the placement of site furnishings and the furnishings themselves. It has been as long as 25 years since many of the benches, trash receptacles, street lights, planters and kiosks have been updated. Since this time styles have changed, but more importantly, so has the character of Portland's downtown. The site furnishings chosen for the next 25 years should be respectful of the past as well as celebrate the vision of what the downtown will become. The furnishings should be consistent throughout the primary treatment corridor in order to create visual unity and legibility within the downtown. Once a street furnishings palette is selected it should become the standard for the entire area.

The consultants and the Advisory Committee discussed their enthusiasm about choosing a style of site furnishings that would communicate and strengthen the identity of Portland's Arts District within the downtown. Site furnishings should be contemporary, creative, well-constructed and unique to the City of Portland wherever possible, but not trendy and quickly outdated. They should also be easy to maintain and able to withstand the abuse inflicted on them by climate, potential vandalism and frequent use.

Because of the impact that these furnishings will have on the downtown, it is also recommended that an amenities cluster be tested in an area of the downtown where it will receive a lot of use. This will allow the City to evaluate the aesthetic merits of the individual furnishings as a grouping as well as their durability and maintainability.

The consultants selected a number of furnishings from catalogues within the style preference communicated by the Advisory Committee. The Committee and the public voted on the various options for each category—one bench, one drinking fountain, etc. The consultants reviewed the results of this vote and selected the following amenities to be the standard palette adopted by the City:

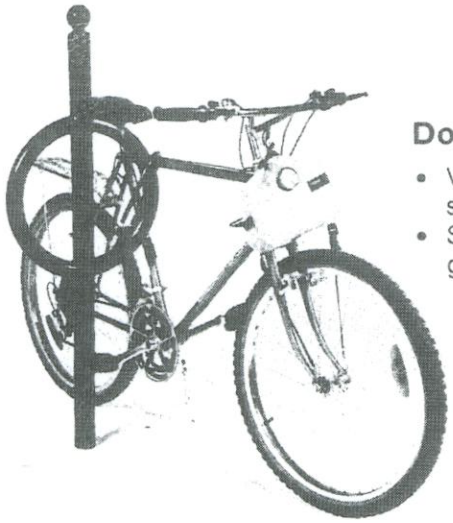
Bench:	Landscape Forms	*Plainwell*	fig. V-13A
Bicycle Rack:	Trystan	*TD-1*	fig. V-13B
Bollard:	Trystan	*Windsor*	fig. V-13C
Drinking Fountain:	Murdock	*M-30*	fig. V-13D
Planter:	*existing used by the City of Portland*		fig. V-13E
Sign / Kiosk:	(Richardson & Assocs.)	*Option 7*	fig. V-13F
Tree Grate:	Urban Accessories	*OT*	fig. V-13G
Tree Guard:	Neenah	*C*	fig. V-13H
Waste Receptacle:	Landscape Forms	*Plainwell**	fig. V-13I

* Note: Plainwell Wood to be used within the comfort clusters only. Plainwell Aluminum (painted black) to be used elsewhere.

Although these furnishings have been selected as the best alternatives from a number of catalog choices, the consultants emphasized the advantage of custom designed street furnishings to be expressive of and unique to the City of Portland. Custom furnishings would allow the most site specificity in relating to the surrounding architecture and community, and the greatest control over quality. This was agreed upon by the Advisory Committee.

Figure 13-A

Plainwell Bench by Landscape Forms



Donut Rack TD-1

- Versatile to fit bike chains or high security U-shaped locks
- Subgrade installation or above ground mounting

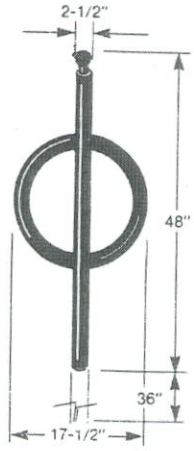


Figure 13-B

TD-1 Bicycle Rack by Trystan

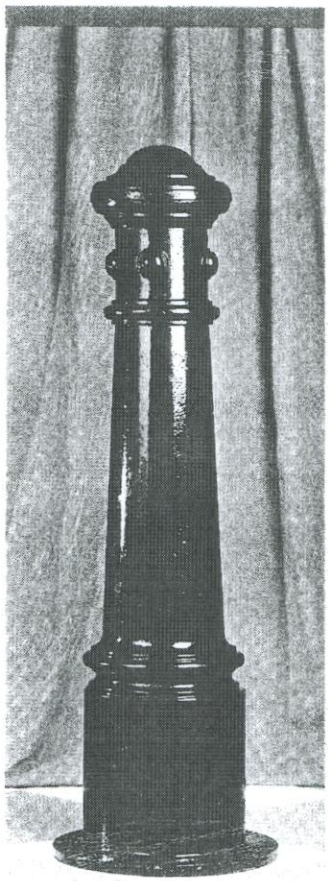


Figure 13-C

Windsor Bollard by Trystan

Figure 13-D

M-*30* **Drinking Fountain** by Murdock

Figure 13-E

Granite Planter (City of Portland)

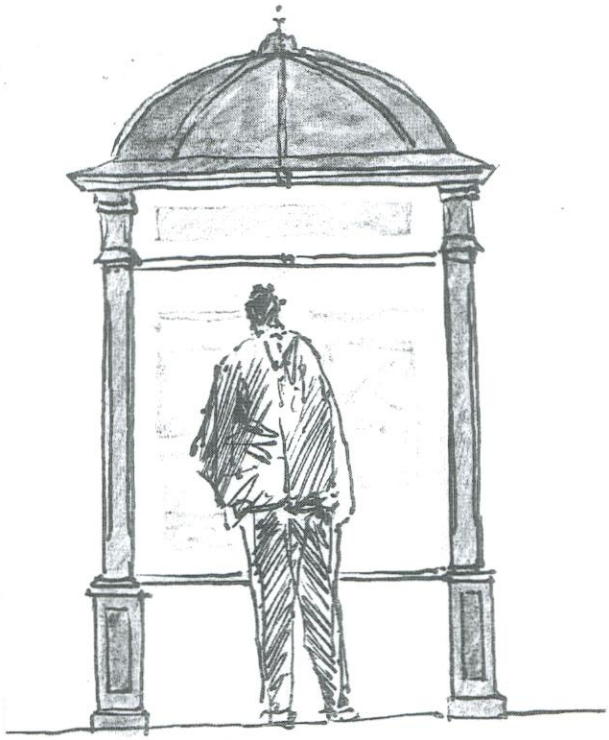


Figure 13-F

Sign / Kiosk (Richardson & Associates)

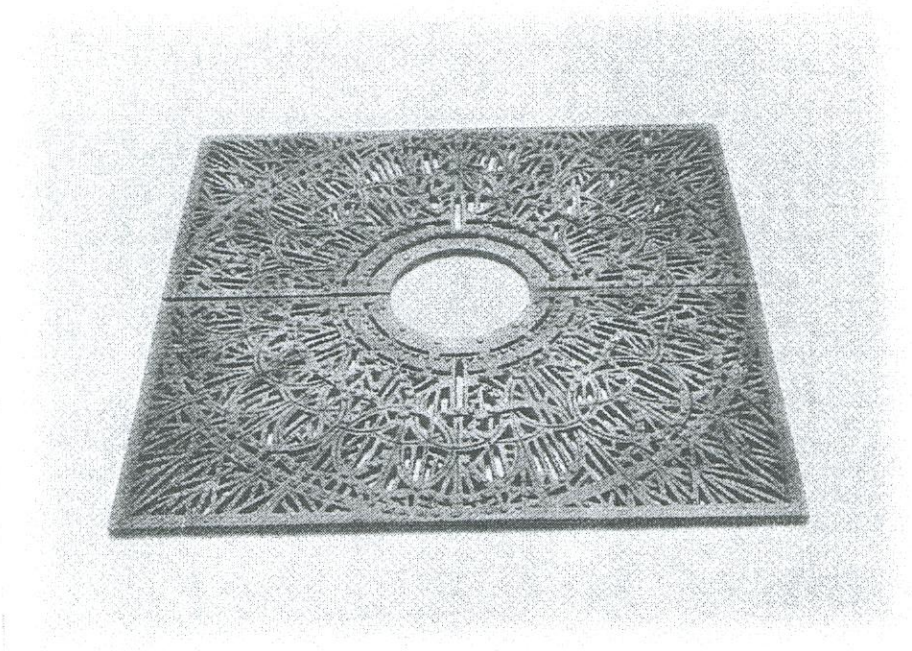


Figure 13-G

Type OT **Tree Grate** by Urban Accessories

Figure 13-H

Type C Tree Guard by Neenah

Figure 13-I

Plainwell **Waste Receptacle** by Landscape Forms

The Advisory Committee discussed ways to incorporate the arts community into the choice of site furnishings. A three-tiered approach was developed which allows various levels of participation by local artists and arts organizations.

- Commission a local artist or group of artists to design the amenity clusters located within and in the immediate vicinity of Congress Square. These clusters would serve to reinforce the identity of Congress Square as the heart of the Arts District.
- Reserve a place within each cluster for art. One idea is to have a different artist design a pavement treatment for the accent paving at the center of each cluster. This treatment would allow every cluster to be unique, site expressive and to reinforce the presence of the arts within the downtown while still allowing visual unity along the corridor.
- Create an identity marker to be placed on the sidewalk in front of every arts-related organization within the Arts District. The marker should be dynamic, colorful and able to be seen both day and night. This approach would thematically link organizations throughout the broad geographic limits of the Arts District.

Place-Specific Interim Recommendations

The MaineWay pedestrian mall is an integral space within the downtown. It provides the greatest concentration of pedestrian amenities within the study area and provides a pedestrian "bridge" between Monument Square and the Old Port. It is has not been designated as a major node because its primary function is as a circulation corridor. However, it does function as somewhat of a "linear node" in that it has an abundance of amenities to provide small gathering spaces along its length. While the bone structure of this area is good, an updating of the pedestrian amenities and their placement within the corridor-- as well as a few interim design recommendations-- can be made.

Monument Square / Upper Pedestrian Mall

As noted in the node recommendations for Monument Square, the double row (cr "allée") of trees that form the pedestrian mall create a division between Monument Square and the adjacent storefronts. Pedestrians tend to walk either very close to the storefronts or on the other side of the trees, but not in between. Part of the reason for this is the placement of site furniture. Benches and lights have been installed between the rows of trees so that it is impossible to walk down the center of the mall. The benches are placed in fixed pairs, back to back-- an awkward social situation. Waste receptacles, planters and newspaper vending boxes are planted in circulation-impeding configurations. The following recommendations highlight interim adaptations that will improve the relationship between Monument Square and the pedestrian mall (fig. V-14):

- Remove four trees from the allée in order to begin to open up the visibility between the Square and the storefronts.
- Update all benches, waste receptacles and lights with those recommended for the primary corridor treatment area.
- Locate benches facing one another with ample room for privacy, leaving the center of the allée free for pedestrian circulation.
- Relocate post lights to a location that will not block pedestrian circulation or the visibility between the rows of trees.
- Provide movable café tables and chairs in the area created by the removal of the trees. These tables and chairs, available for public use, could be managed by adjacent businesses. They would need to be mobile enough to be able to be relocated during large events in Monument Square.
- Place planters around the perimeter of the café tables and chairs. They should be spaced far enough apart to allow for vehicles to park between them for special events (like the Farmer's Market).

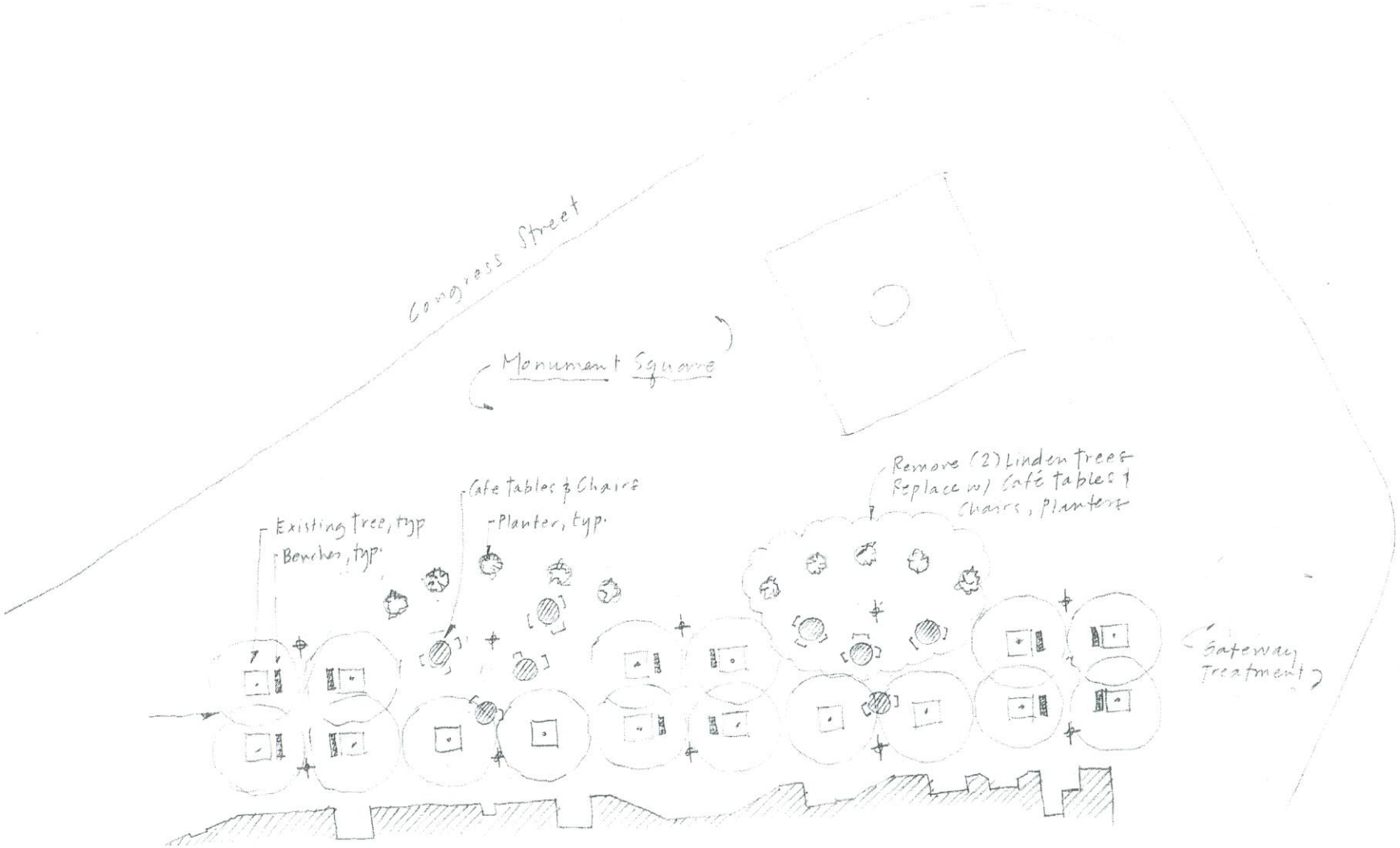

Congress Street
Monument Square
Existing tree, typ
Benches, typ.
Cafe tables & Chairs
Planter, typ.
Remove (2) Linden trees
Replace w/ Café tables &
Chairs, Planters
Gateway
Treatment

Figure V-14

One City Center / MaineWay Pedestrian Mall

The "postage stamp" of lawn adjacent to Federal Street between One City Center and the pedestrian mall does little to enhance the quality of its surroundings. It is not large enough for people to gather on and offers no shelter from the elements or the looming buildings. One of the greatest challenges that this space presents is an awkward geometry created by the surrounding architecture. Pedestrian circulation is dispersed in many directions. Although this space is privately owned, a recommendation is made to suggest the quality of eventual improvements (fig. V-15):

- A grove of trees is planted in a series of planting beds. The trees create shelter and help to mitigate the scale of One City Center.
- The planting beds could be angled in many directions to allow circulation to freely filter through the space. They may be raised to increase the sense of enclosure and "passing through".
- Benches should be placed within the grove in such a way that the visitor has a choice of views and degree of enclosure by the surrounding beds.
- The trees may be a different species from those at the MaineWay pedestrian mall, perhaps even multi-stem with a lighter foliage texture and seasonal interest.
- The planting beds should be planted with plants that have seasonal color (flower, fall foliage, etc.).

Lower MaineWay Pedestrian Mall

The lower portion of the pedestrian mall suffers from similar problems as the upper portion previously described. Site furnishings need to be updated and placed differently in order to allow for better pedestrian circulation. A more distinct edge needs to be implemented at the terminus of the mall to discourage mid-block crossings from occurring across from Lobsterman's Plaza (fig. V-16).

- Update all benches, waste receptacles and lights with those recommended for the primary corridor treatment area.
- Locate benches facing one another with ample room for privacy, leaving the center of the allée free for pedestrian circulation.
- Relocate post lighting to a location that will not block pedestrian circulation or the visibility between the rows of trees.

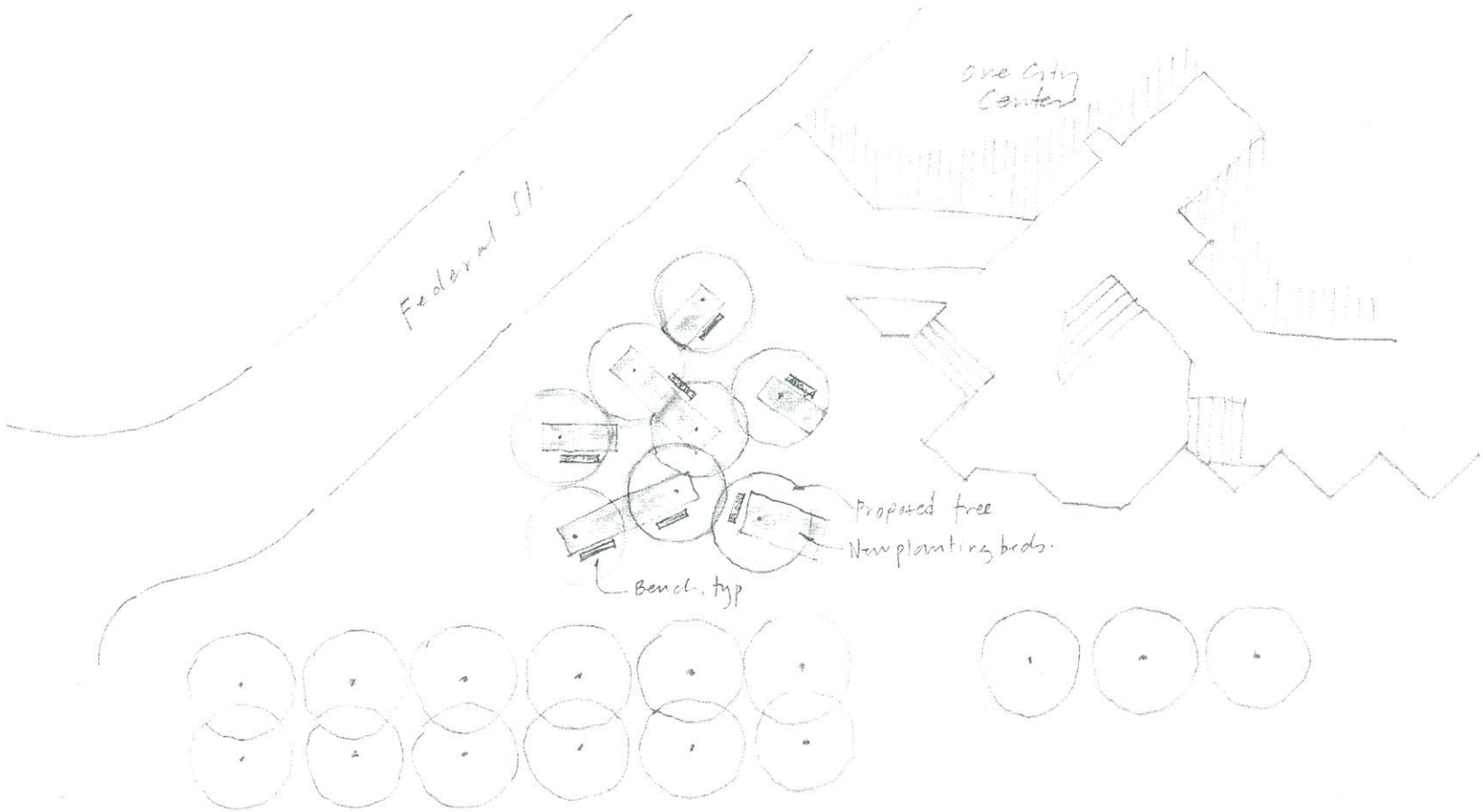

One City Center
Federal St.
Proposed tree
New planting beds.
Bench, typ

Figure V-15

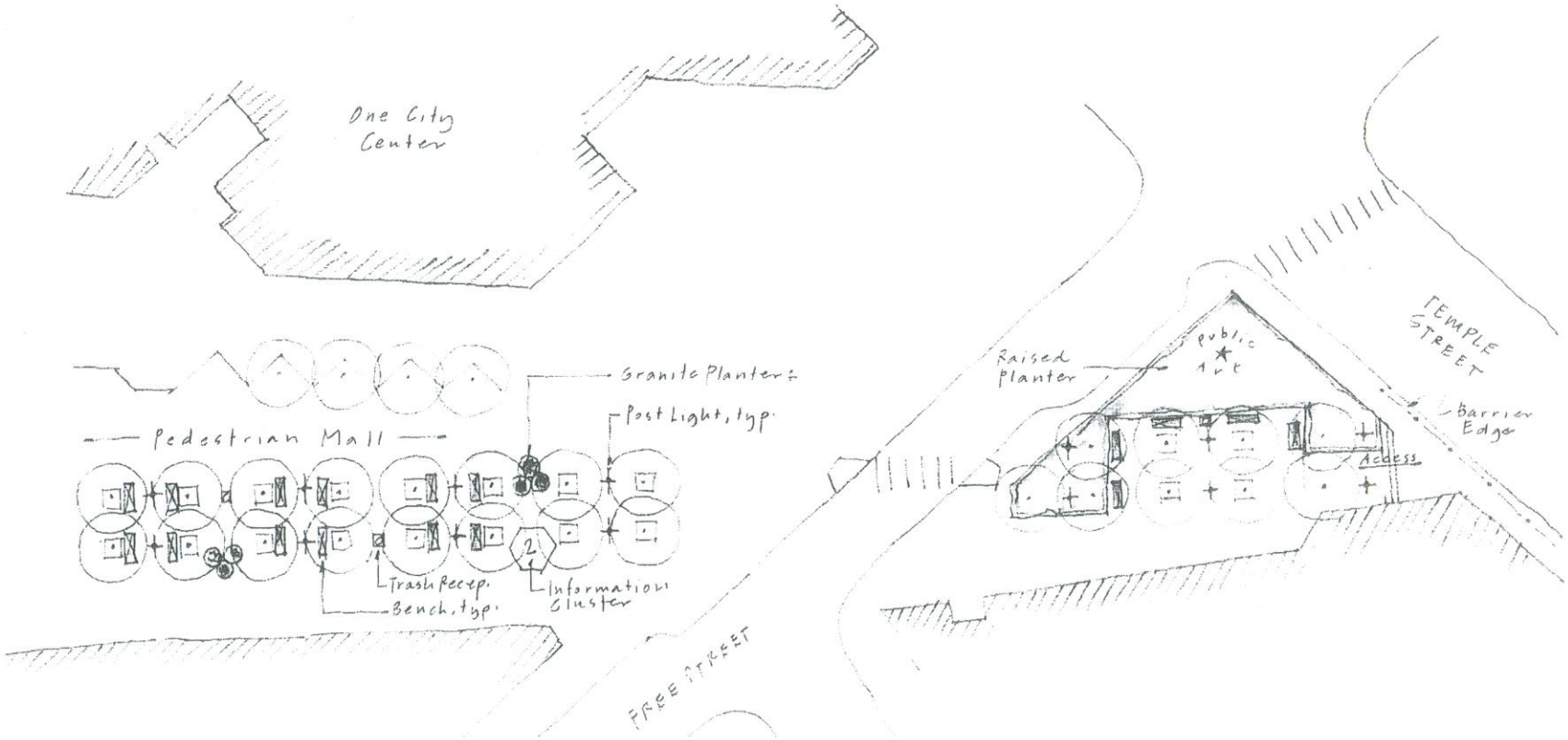
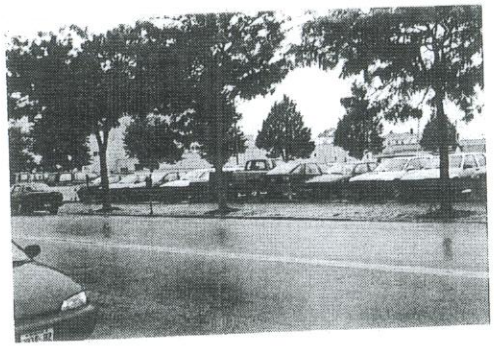

One City Center
Granite Planters
Post Light, typ.
Pedestrian Mall
Trash Recep.
Bench, typ.
Information Cluster
FREE STREET
Raised Planter
Public Art
TEMPLE STREET
Barrier Edge
Access

Figure V-16

- Provide information clusters to organize newspaper vending boxes and to provide public telephones in this area.
- Create a seating area enclosed by a planter at the terminus of the pedestrian mall to encourage through pedestrian traffic to move to one crosswalk or the other and discourage mid-block crossings.
- The Public Art Committee should revisit the success of the 'Michael' sculpture. The Advisory Committee suggests exploring the idea of temporary art installations on this site.
- Encourage the owners of One City Center to update their site furnishings to complement the proposed City-installed amenities.

Congress Street / Myrtle Street / Franklin Arterial



As the analysis stated, the section of Congress Street between Myrtle Street and Franklin Arterial is a low quality zone due, in part, to the lack of an edge condition in that area. Lincoln Park provides an edge on one side of Congress Street with its stately granite posts and iron fence. The opposite side of the street has very few street trees and a horizontal plane of paved parking. The street lights are of the cobra-head type-- scaled to the vehicle, not to the pedestrian and there is very little in the way of color or texture.

The recommendations do not advise upgrading this section of the corridor to the primary treatment level, simply because (other than visiting Lincoln Park or commuting from the East End) there is little to attract pedestrians at the current time. However, the intersection of Congress Street and Franklin Arterial is important as a gateway into the downtown from I-295 and needs to be improved in order to provide visitors with visual clues to finding their way around the City. As the downtown expands into this area, amenities can be upgraded accordingly.

- Plant street trees at 25' on center, with tree guards, to establish the visual rhythm that will continue throughout the primary corridor. Implement hanging baskets to add color and texture to the street.
- Improve the quality of the sidewalk paving to make this section of the corridor more 'walkable'.
- Upgrade the street lights to the type being used within the primary treatment corridor. The use of banners to attract visitors' attention is especially important at the intersection of Congress St. and Franklin Arterial.
- Consider implementing some sort of edge along Congress Street opposite from Lincoln Park. This edge could be some adaptation of the granite posts and iron fence at Lincoln Park (fig. V17).

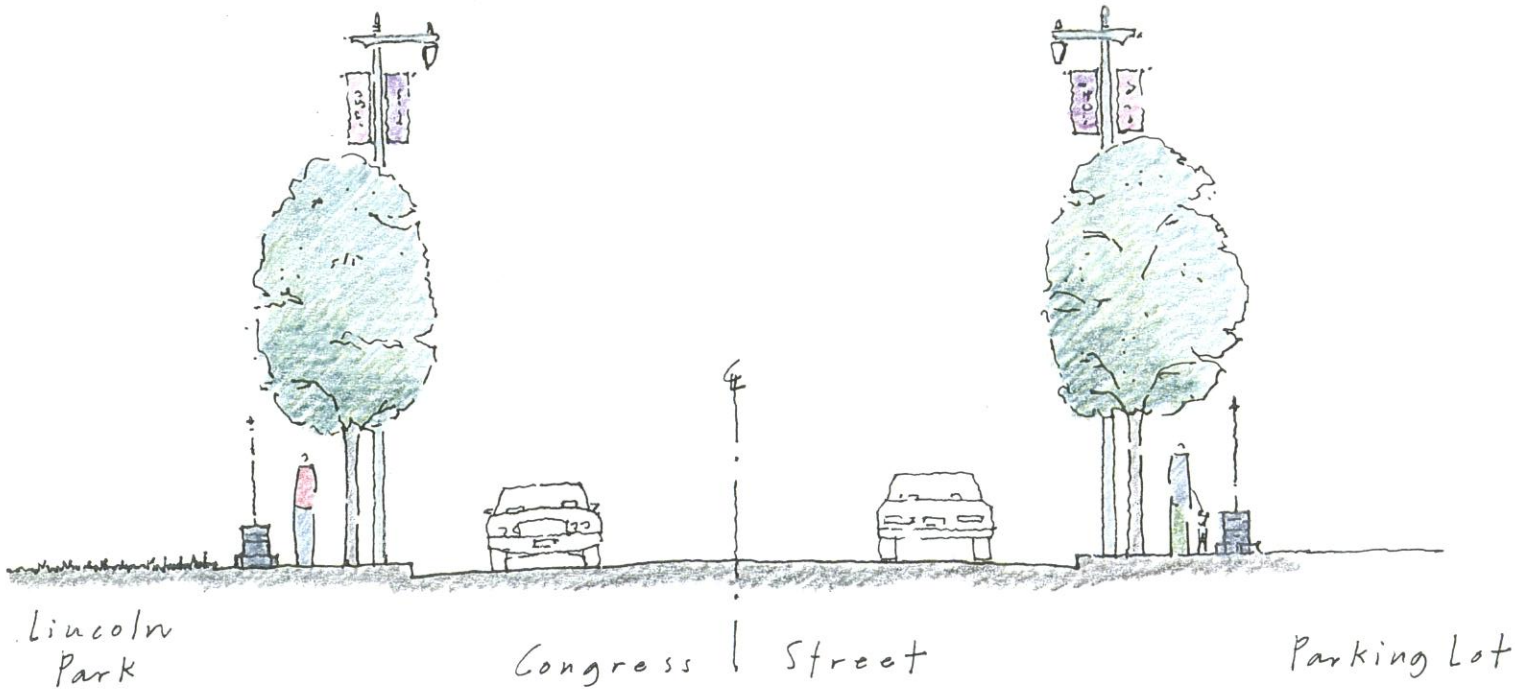


Figure V-17

Site Graphics Recommendations

Signs and graphics are, in terms of physical size, smaller than the dominating scale of urban streets, spaces and architecture. But scale and focus are variable to the human user. Our senses move from this large and general perception of things to a more specific and intimate view of the streetscape: we see things from afar, we move toward them, past them and can then focus on the smaller, human-scaled elements in the streetscape. Therefore, urban signs and graphics are an important complement to our downtown buildings, parks and public spaces. They provide identification, information and direction to drivers, passengers and pedestrians alike. They must successfully present a wide variety of municipal, commercial and public interest messages within the scale and complexity of the streetscape (fig. V-18).

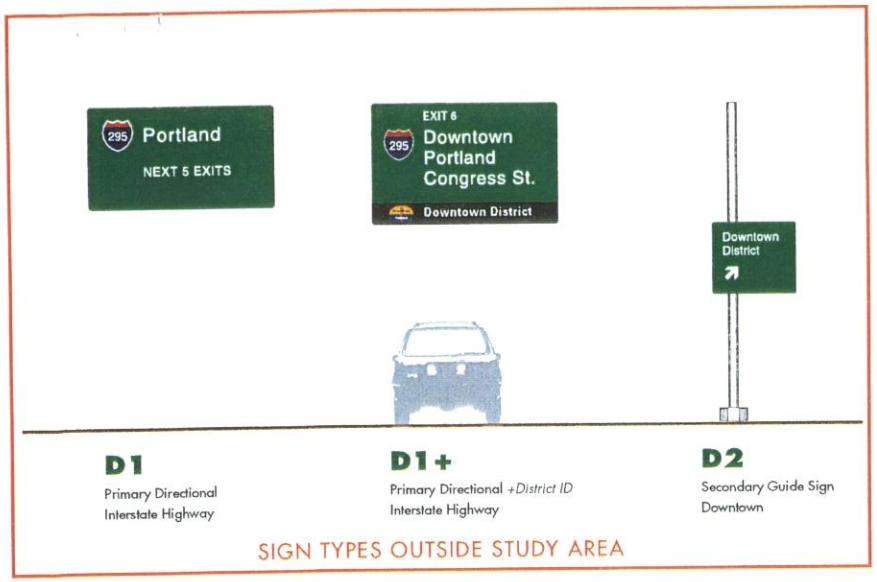
Urban graphics must be visible and versatile. In terms of maintenance, they must be flexible and adaptable – constructed from a "kit of parts" that is engaging and attractive. Color, form, complexity and graphic sophistication in all the sign types reinforce a sense of quality and place. Integrated lighting will make the system engaging and user-friendly in late afternoon and evening. In terms of content, information (including maps, directories and other information) must be well-managed and continuously updated. The urban graphics system must embody a design expressive of – and unique to – downtown Portland.

The conceptual design of the streetscape project has resulted in the development and recommendation of the following categories of signs and other graphic elements :

Identification

This category of sign types are intended to identify and announce arrival into downtown Portland (fig. V-19). The recommended types in this category are:

A1+ Downtown Gateway/Portal - District Identifier (integrated to architectural gateway form)
Announces and reinforces arrival



D1
Primary Directional
Interstate Highway

D1+
Primary Directional *+District ID*
Interstate Highway

D2
Secondary Guide Sign
Downtown

SIGN TYPES OUTSIDE STUDY AREA

A1
Downtown Boundary Sign
District Identifier

A2
Street Name
w/District Identification

C1
Special Graphics
Inform/Identify/Entertain

Special events/activities

C2
Standard Banners
Inform/Identify

Announce/reinforce place

D3
City Directional
Primary

Direct to districts/areas & primary destination

D4
City Directional
Secondary

Reinforce district and direct to primary destination(s)

D5
Parking ID/Direction
Primary

Reinforce direction to parking for primary destinations

D6
Pedestrian Directional
Primary

Direct to districts/areas & primary destinations

B1
City Visitor Information
Primary

Complex: multi-sided

B2
City Visitor Information
Secondary

Basic: double-sided

B3
Historic/Arts Elements
Unique Place & Expression

Engage, educate, inspire

SYMBOL KEY to
SIGN SYSTEM TYPES

A — Identification
Signs, Structures, etc.

B — Information
Kiosks, Signs, Info "Sculpture"

C — Special Graphics
Banners, Kinetic Forms, etc.

D — Directional
Signs, Forms + Arrows

PROJECT

City of Portland, Maine

Downtown Streetscape Project

Environmental Graphics System

DESIGN TEAM

Gamble Design *Portsmouth, NH*

Richardson & Associates *Saco, ME*

Wilbur Smith Associates *Portland, ME*

TITLE

Sign Types and Hierarchy

All System Components

10 May 1999

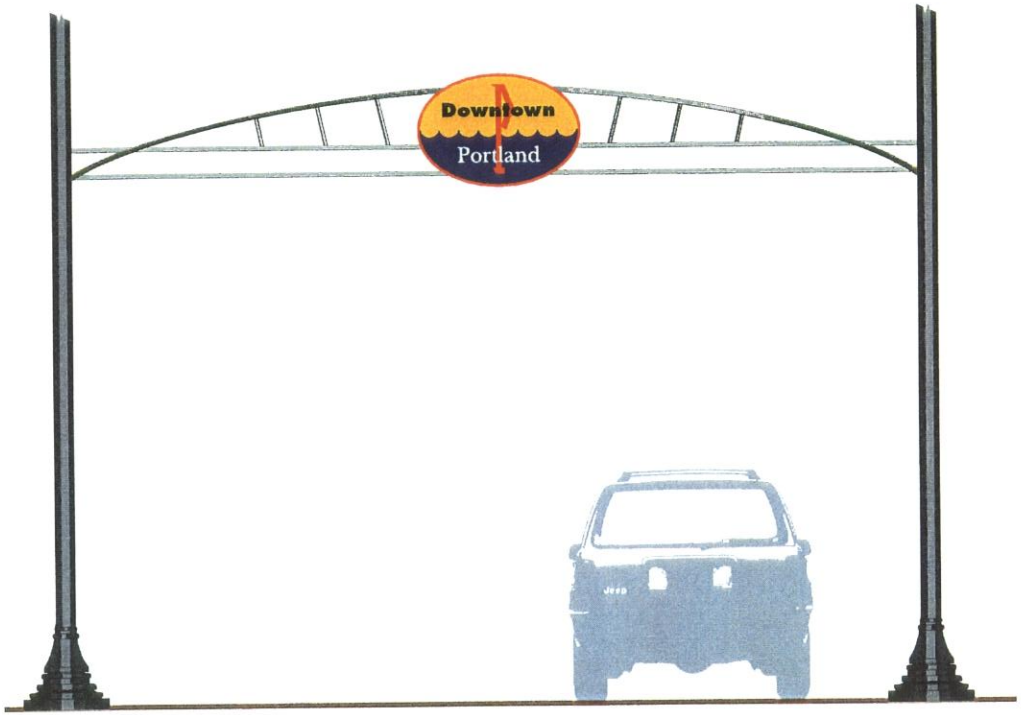
DRAWING Nº

ST.1

Figure V-18

SIGN SYSTEM TYPES

A Identification



A1+

Downtown Gateway/Portal
District Identifier

Announces arrival

A1

Downtown Boundary Sign
District Identifier

Reinforces arrival

A2

Street Name
w/ District Identification

Reinforces location

PROJECT

City of Portland, Maine
Downtown Streetscape Project
Environmental Graphics System

DESIGN TEAM

Gamble Design *Portsmouth, NH*
Richardson & Associates *Saco, ME*
Wilbur Smith Associates *Portland, ME*

TITLE

Identification Sign Types
District Boundary & Street Signs
10 May 1999

DRAWING Nº

ST.A

Figure V-19

A1 Downtown Boundary Sign - District Identifier (on special post or other armature)
Reinforces arrival

A2 Street Name - District Identifier (district ID element attached to street sign)
Reinforces location

Information

This category of graphic types are intended to inform pedestrians within downtown Portland (fig. V-20, V-21). The recommended types in this category are:

B1 City Visitor Information Kiosk - Primary (complex; multi-sided)
Primary Pedestrian Information
This kiosk can take multiple design forms depending upon its location. In general, it is intended for placement in nodes and other large, focal public spaces.

B2 City Visitor Information Kiosk - Secondary (basic; double-sided)
Secondary Pedestrian Information
This kiosk is intended for placement along the street and in smaller public spaces.

B3a Unique Street Element (to engage, amuse, inspire)
Downtown Arts
This type is intended for placement on the streetscape near entrances to art museums, galleries, schools and other arts venues. Each is uniquely crafted to reflect the "personality" of the particular arts organization.

B3b Unique Street Element (to engage, educate, inform)
Historic Downtown
This type is intended for placement on the streetscape near entrances to historic houses, societies and other historic points of interest. Again, each is uniquely crafted to reflect the "personality" of the particular historic place or organization.

SIGN SYSTEM TYPES

B1,2 Information

B1

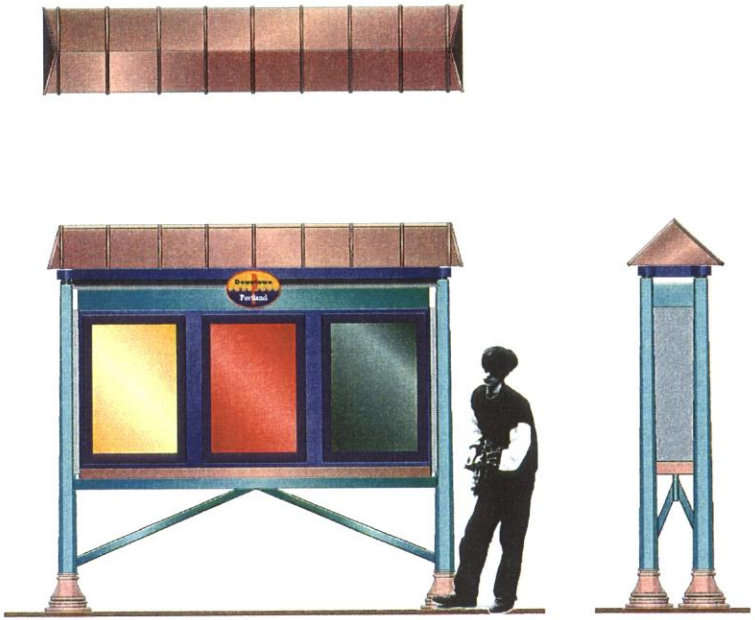
City Visitor Information
Primary

Complex: multi-sided

B2

City Visitor Information
Secondary

Basic: double-sided



B1+

City Visitor Information
Primary

Complex: multi-panel

PROJECT

City of Portland, Maine
Downtown Streetscape Project
Environmental Graphics System

DESIGN TEAM

Gamble Design *Portsmouth, NH*
Richardson & Associates *Saco, ME*
Wilbur Smith Associates *Portland, ME*

TITLE

Information Sign Types
City/Visitor Kiosks: Primary/Secondary
10 May 1999

DRAWING Nº

ST.B1,2

Figure V-20

Special Graphics/Banners

Banners add identification and information to the streetscape. They should be well-designed, colorful, kinetic, informative and add a level of visual complexity and interest that "floats" above the street (fig. V-22). The recommended types in this category are:

C1 Special Graphics/Banners (to inform, identify, entertain)
Communicate information about special events and activities

C2 Standard Banner Graphics (to inform, identify)
Announces/reinforces place and communicates information

Directional/Parking

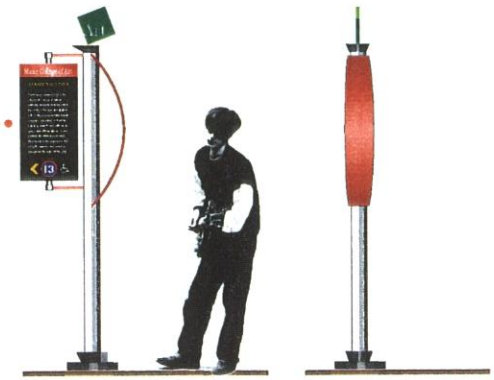
This category of signs is the largest in terms of types. This is necessary because a clear hierarchy of sign types must communicate a series of sequential messages to viewers at a variety of scales and speeds. Information is presented from the general to the specific, and must be carefully considered.

Functionally, a single arrow is used for each direction (left, right, straight) grouped with other destinations in the same direction (instead of an individual directional arrow for each individual destination). Simplified typography and high message to background contrast makes destinations easier to read. Conceptually, a two-color scheme is used to separate directions to downtown districts/areas (Old Port, Congress Square) from directions to building destinations (Portland Museum of Art/Public Market).

All directional signs must be placed relative to an overall system hierarchy. Sign types D1 (Primary Directional) and D2 (Secondary Guide) are located on the interstate highway system leading into and out of Portland. These are essential "first" components in the directional system hierarchy. For the signs listed below to function most effectively, these interstate sign types must be addressed as part of an overall directional strategy (fig. V-23). Within the Downtown study area, the recommended sign types in the directional category are:

SIGN SYSTEM TYPES

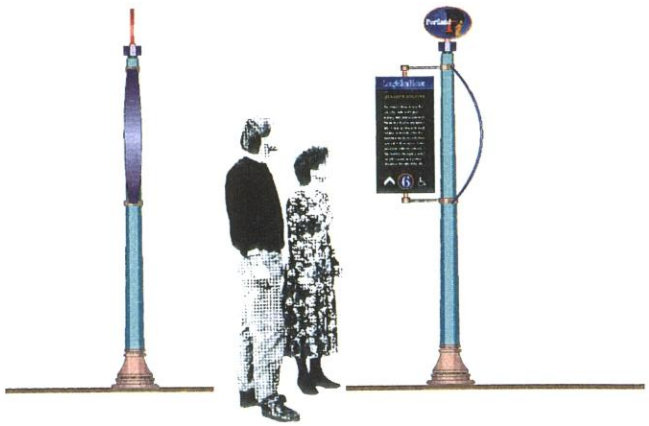
B3 Information



B3A

Downtown Arts
Unique Street Element

Engage, amuse, inspire



B3B

Historic/Arts
Unique Street Element

Engage, educate, inform

PROJECT

City of Portland, Maine
Downtown Streetscape Project
Environmental Graphics System

DESIGN TEAM

Gamble Design *Portsmouth, NH*
Richardson & Associates *Saco, ME*
Wilbur Smith Associates *Portland, ME*

TITLE

Information Sign Types
Downtown Arts/City Historic Elements
10 May 1999

DRAWING Nº

ST.B3

Figure V-21

SIGN SYSTEM TYPES

C Special Graphics/Banners

C1

Special Graphics
Inform/Identify/Entertain
Special events/activities

C2

Standard Banners
Inform/Identify
Announce/reinforce place

PROJECT

City of Portland, Maine
Downtown Streetscape Project
Environmental Graphics System

DESIGN TEAM

Gamble Design *Portsmouth, NH*
Richardson & Associates *Saco, ME*
Wilbur Smith Associates *Portland, ME*

TITLE

Special Graphics/Banners
Mounted on light posts/other
10 May 1999

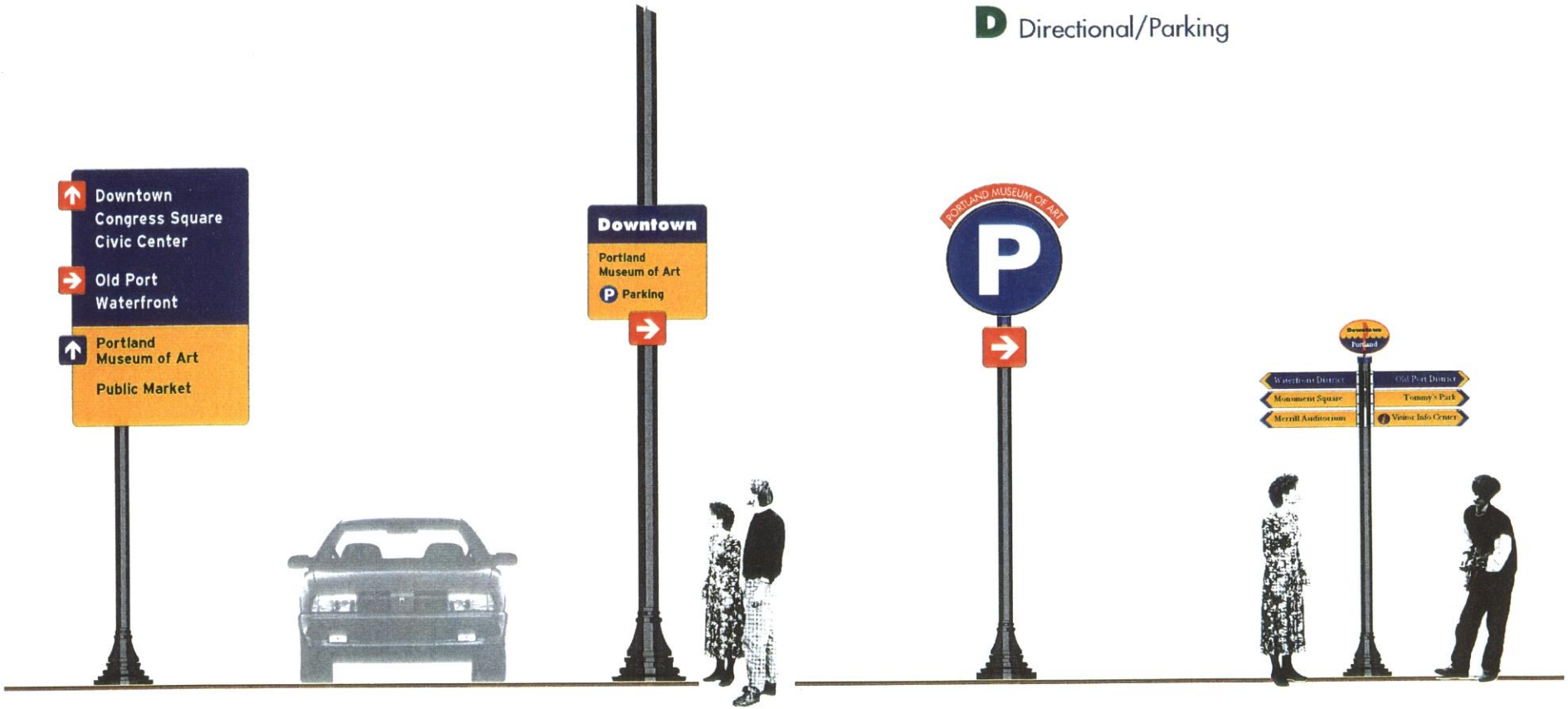
DRAWING Nº

ST.C

Figure V-22

SIGN SYSTEM TYPES

D Directional/Parking



D3

City Directional
Primary

Direct to districts/areas & major destinations

D4

City Directional
Secondary

Reinforce district and direct to major destination(s)

D5

Parking ID/Direction
Primary

Reinforce direction to parking for primary destinations

D6

Pedestrian Directional
Primary

Directs to districts/areas and primary destinations

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TITLE

Directional Sign Types
City Vehicular, Parking & Pedestrian Directionals
10 May 1999

DRAWING Nº

ST.D

Figure V-23

D3 City Directional - Primary
Directs to districts/areas and major destinations

D4 City Directional - Secondary
Reinforces district identity and directs to major destinations

D5 Parking Identification/Direction - Primary
Reinforces direction to parking for major destinations

D6 Pedestrian Directional - Primary
Directs pedestrians to districts/areas and major destinations

Summary

Urban signs and graphics are essential elements in our downtown – on streets, in buildings, parks and public spaces. They provide identification, information and direction to drivers, passengers and pedestrians alike. They must successfully present – through a consistent and concise system – a wide variety of municipal, commercial and public interest messages within the scale and complexity of the streetscape.

As many American cities – such as Baltimore, Cincinnati, Philadelphia and San José – have discovered, a good sign program can enhance development efforts, raise citizen awareness, promote safety for pedestrians and drivers, increase visitor satisfaction and positively influence businesses of all kinds.

This systematic urban design approach to the communication of information is no longer considered a luxury. The complexity and pace of contemporary American cities like Portland require it. A system of urban environmental graphics, one that resonates strongly with landscape, architecture and infrastructure, is an essential attribute of the successful city. Design must respond to the context and unique qualities of the city itself. The outstanding sign program will attract and inform users, assisting them by communicating what they need to know and helping them to find their way.

Implementation Strategy

The recommendations outlined within this report, as a whole, translate into a major investment for the City of Portland. The physical, financial and administrative implications of such an undertaking are impressive. It was therefore decided that an implementation strategy be developed that will allow for a gradual and flexible execution of streetscape improvements. The strategy attempts to balance priority needs of individual areas within the downtown with the overall goals of the study. The value of such a strategy is that it breaks the recommendations down into pieces that are logical within the framework of the study, but also financially reasonable.

As stated previously, the strength of the Congress Street corridor is in the relationship between the series of nodes and paths that alternate over the length of the corridor. The implementation strategy recommends implementing the study's recommendations in a sequence that preserves the strength of this relationship.

Implementation within the primary treatment corridor should occur in pairings of adjacent nodes and paths. This pairing would begin to build strength within a concentrated area of the Congress Street corridor that could be extended with time. Prototypes for nodes and corridors could also be tested within the pairing for use in future phases.

Node/Path Pairings:

Longfellow Square / Congress Street between Longfellow and Congress Squares
Congress Square / Congress Street between Longfellow and Congress Squares
Congress Square / Congress Street between Congress and Monument Squares
Monument Square / Congress Street between Congress and Monument Squares
Monument Square / MaineWay Pedestrian Mall
Lobsterman's Plaza / MaineWay Pedestrian Mall

Note: The order in which these pairings are implemented is not a recommendation that is included as part of this study.

Other Nodes and Paths that are not paired:

Node:

Maine Savings Bank Plaza

Paths:

Congress Street between Monument Square and City Hall (Myrtle St.)
Free Street
Congress Street between Myrtle St. and Franklin Arterial.
Middle Street between Temple St. and Exchange St.

Later phases should investigate the implementation of improvements at other secondary treatment area paths which link the downtown with other important facilities or new districts that are established or proposed.

Portland's downtown is a constantly changing entity. Physical, economic, political and social changes to the downtown, adjacent neighborhoods, and the city as a whole will have a direct impact on the phasing recommendations within this study. The implementation strategy will ultimately need to be revisited several times within the next few years to make sure that the priorities stated within this study still hold.