

**Franklin Street Phase II
Feasibility Study**

**Scope of Work
Revised Draft**

Prepared By

Maine Department of Transportation
Bureau of Transportation Systems Planning

In cooperation with

City of Portland
Portland Area Comprehensive Transportation System (PACTS)

July 22, 2010

Formatted: Left

Notes:

1. Draft Scope to include inclusion of a Preliminary Design Report (PDR) for the intersection of Franklin Street at Marginal Way /Fox Street, as an outcome of the Preferred Alternative Refinements.

2. Draft Scope will include an adjustment in the task schedule for the Pedestrian Safety Analysis to occur during the Data Collection and Compliation section of the Study; with recommendations to be provided to officials of the City of Portland and MDOT in advance of the study implementation section.

3. Draft Scope to include the addition of 2 more Public Informational Meetings bringing total of the Public Information Meetings planned from 3 to 5.

Franklin Street Phase II Feasibility Study
Scope of Work
Revised Draft

Table of Contents

General Study Information 1
 Study Background..... 1
 Study Description and Purpose..... 1
 Study Area 2
 Schedule 2
 Summary of Tasks 2
TASK 1 Study Management and Administration 2
 Task 1.1 Study Management..... 2
 Task 1.1.1 Monthly Progress Reports 3
 Task 1.1.2 Quality Assurance/Quality Control (QA/QC)..... 3
 Task 1.2 Project Schedule 3
TASK 2 Coordination..... 3
 Task 2.1 Public Advisory Committee 3
 Task 2.2 Agency Coordination Meetings 5
 Task 2.3 Municipal Official Meetings 5
 Task 2.4 City Transportation Committee Meetings..... 5
Task 3 Public Outreach..... 5
 Task 3.1 Public Involvement Plan 5
 Task 3.1 Public Informational Meetings..... 6
 Task 3.2 Website Development and Maintenance..... 6
 Task 3.3 Ongoing Media Public Relations 6
 Task 3.4 E-mail Distribution Database 7
 Task 3.5 Response to Public Comments..... 7
 Task 3.6 Deliverable 7
TASK 4 Purpose and Need, Goals and Objectives, Evaluation Criteria..... 7
 Task 4.1 Purpose and Need Statement..... 7
 Task 4.2 Goals and Objectives..... 7
 Task 4.3 Evaluation Criteria 7
 Task 4.4 Deliverable 8
TASK 5 Data Collection and Compilation..... 8
 Task 5.1 Study Area Base Maps 8
 Task 5.2 Transportation Data..... 9
 Task 5.2.1 Previous Reports and Studies..... 9
 Task 5.2.2 Currently Planned or Programmed Transportation Improvements 9
 Task 5.2.3 Roadway Characteristics..... 9
 Task 5.2.4 Existing Traffic Volumes..... 10
 Task 5.2.5 Corridor Travel Time and Delay Runs..... 11
 Task 5.2.6 Crash Data..... 12
 Task 5.3 Pedestrian and Bicycle Facilities 12
 Task 5.4 Transit Services..... 12
 Task 5.5 Park and Ride 12
 Task 5.6 Land Use and Development Data 12

Franklin Street Phase II Feasibility Study

Scope of Work

Revised Draft

Task 5.6.1 Utilities..... 12

Task 5.6.2 Existing Right-of-Way..... 13

Task 5.6.3 Existing Land Uses 13

Task 5.6.4 Existing Zoning 13

Task 5.6.5 Vacant or Underutilized Land Development 13

Task 5.6.6 Socioeconomic Characteristics 14

Task 5.7 Environmental Resources..... 14

Task 5.8 Deliverable 15

TASK 6 Existing Conditions Analysis..... 15

Task 6.1 Transportation 15

Task 6.1.1 Design Hour Traffic Volumes..... 15

Task 6.1.2 Existing Traffic Operations Analysis..... 15

Task 6.1.3 Crash Analysis 16

Task 6.1.4 Assessment of Roadway Geometry and Physical Characteristics 16

Task 6.2 Bicycle and Pedestrian Facilities Assessment..... 17

Task 6.2.1 Bicycle and Pedestrian Facilities 17

Task 6.2.2 Qualitative ADA Compliance Review..... 17

Task 6.3 Transit System Assessment..... 17

Task 6.4 Land Use and Development..... 17

Task 6.4.1 Existing Land Use, Public Utilities, and Municipal Zoning 17

Task 6.4.2 Existing Market Conditions 18

Task 6.4.3 Assessment of Vacant & Under-Utilized Land Development Potential. 18

Task 6.5 Environmental Review 18

Task 6.6 Deliverable 18

TASK 7 Future Conditions 19

Task 7.1 Assess Future Land Use Conditions 19

Task 7.1.1 Currently Proposed Developments in the Corridor..... 19

Task 7.1.2 Market Potential 19

Task 7.1.3 Property Reinvestment Assessment 19

Task 7.1.4 Assessment of Future Development Potentials..... 19

Task 7.1.5 Identification of Major Traffic Generators 20

Task 7.2 Future Land Use..... 20

Task 7.3 Traffic Forecast 20

Task 7.3.1 2035 No-Build Model Volumes..... 20

Task 7.3.2 2035 Build Model Volumes 20

Task 7.4 Bicycle and Pedestrian 21

Task 7.5 2035 Transit Demand 21

Task 7.6 Deliverable 21

TASK 8 Alternatives Development..... 21

Task 8.1 Alternatives 21

Task 8.2 Deliverables..... 21

TASK 9 Alternatives Evaluation 21

Task 9.1 Transportation Performance..... 22

Task 9.1.1 Vehicle Analysis 22

Task 9.1.1.1 2035 No-Build Analysis..... 22

Franklin Street Phase II Feasibility Study

Scope of Work

Revised Draft

Task 9.1.1.2 2035 Build Analysis 22

Task 9.1.2 Safety Analysis..... 22

Task 9.1.3 Street Reconnection Analysis 22

Task 9.1.4 Pedestrian and Bicycle Accommodation 23

Task 9.1.5 Transit Impacts Analysis..... 23

Task 9.1.6 Peak Hour Parking Analysis 23

Task 9.1.7 Roundabout Analysis 23

Task 9.2 Design Issues..... 24

Task 9.2.1 Conceptual Plans..... 24

Task 9.2.2 Drainage Evaluation..... 24

Task 9.2.3 Constructability 24

Task 9.2.4 Right-of-Way Analysis 24

Task 9.2.5 Utility Analysis 25

Task 9.2.6 Preliminary Construction Cost Estimate..... 25

Task 9.3 Environmental Analysis 25

Task 9.4 Socio-Economic Impact Analysis 25

Task 9.5 Benefit and Cost Analysis..... 26

Task 9.6 Document Alternative Evaluation and Identify Preferred Alternative 27

Task 9.7 Preferred Alternative..... 27

Task 9.8 Deliverable 27

TASK 10 Preferred Alternative Refinements..... 27

Task 10.1 Geometric Refinements to Preferred Alternative..... 27

Task 10.2 Optimize Preferred Alternative Traffic Operations 28

Task 10.3 Deliverable 28

TASK 11 Implementation Plan 28

Task 11.1 Implementation Plan 28

Task 11.2 Deliverable 28

TASK 12 Documentation 28

Task 12.1 Draft Report 28

Task 12.2 Final Report..... 29

Franklin Street Phase II Feasibility Study
Scope of Work
Revised Draft

General Study Information

Study Background

The City of Portland, having created the Franklin Study Committee, undertook “Reclaiming Franklin Street” Study (Phase I) as a visioning process to address challenges and opportunities for the Franklin Street corridor. The purpose of the Phase I study was to evaluate and consider concepts and strategies for improving the safety of pedestrians, bicyclists, transit, and motorists on the corridor, from I-295 to the waterfront, while also considering the arterial’s urban context and potential future development.

The Franklin Study Committee identified three preliminary alternative design concepts to address challenges and opportunities for the Franklin Street corridor. The three alternatives were:

1. Multi-way Boulevard with four through lanes in center and two side access lanes providing parking and bicycle use;
2. Urban Street with bicycle lanes and parallel parking; and
3. Urban Parkway with landscaped median limited parking and parallel bicycle path.

In addition to the three build alternatives described above, other improvements, such as intersection roundabouts, restoring side street connectivity, and transit, were identified by the committee as needing further study in Phase II

Study Description and Purpose

Building upon the Franklin Street Study Committee efforts and alternatives presented in the Reclaiming Franklin Street Final Report, Phase II of this study will provide a technical and engineering analysis to develop a preferred alternative, following complete streets principals, that provides adequate infrastructure to meet the expected future transportation and development demands and includes project elements to facilitate and encourage transit and non-motorized travel within the Franklin Street corridor.

This study will include a detailed transportation, land use, social, economic, and environmental analysis in accordance with Maine’s Sensible Transportation Policy Act (STPA) and the National Environmental Policy Act (NEPA), using Context Sensitive Solutions (CSS) principals.

A public participation process will take place to ensure that at the conclusion of the Phase II Feasibility Study the recommended alternative(s) is based on an informed decision making process. This process will document the purpose and schedule of public information meetings, stakeholder meetings, other meetings and additional efforts to provide community involvement, such as newsletters, handouts, displays, meeting notices or websites. It is intended to provide meaningful communication between Maine Department of Transportation (MaineDOT), the City of Portland, Portland Area Comprehensive Transportation System (PACTS), and the stakeholders; include all

Franklin Street Phase II Feasibility Study

Scope of Work

Revised Draft

stakeholders while remaining manageable; and be a fair process in which stakeholders have an opportunity to influence the course of the study while MaineDOT, the City of Portland, and PACTS maintains its responsibility to make decisions on the study process and its outcomes.

Study Area

The Study Area is approximately 0.80 miles along Franklin Street (also known as US Route 1A) from Commercial Street Waterfront to the Waterfront at Back Cove in a corridor of approximately 1/4 mile width from the edge of pavement on either side along the roadway.

Schedule

The study and all deliverables will be completed within 18 months. There will be many factors affecting the overall schedule such as public review and comment.

Summary of Tasks

The study includes the following tasks:

- Task 1: Study Management and Administration
- Task 2: Coordination
- Task 3: Public Outreach
- Task 4: Purpose and Need, Goals and Objectives, Evaluation Criteria
- Task 5: Data Collection and Compilation
- Task 6: Existing Conditions Analysis
- Task 7: Future Conditions
- Task 8: Alternatives Development
- Task 9: Alternatives Evaluation
- Task 10: Preferred Alternatives Refinements
- Task 11: Implementation Plan
- Task 12: Documentation

Task Description

The following is a description of each work task that will be performed as part of this study.

TASK 1 Study Management and Administration

Task 1.1 Study Management

The City of Portland, PACTS, and MaineDOT have agreed that MaineDOT will take the lead for this study, through staff from the Bureau of Transportation Systems Planning (BTSP), and manage the study in partnership with the City of Portland and PACTS with input from the Public Advisory Committee (PAC) and technical assistance by a consultant.

MaineDOT will be responsible for overseeing and managing the work of consultants retained for this study. All methodology/analytical decisions and conclusions will be

Franklin Street Phase II Feasibility Study
Scope of Work
Revised Draft

coordinated with MaineDOT. As appropriate to study progress, the Consultant will meet with the MaineDOT, the City of Portland and PACTS, in a collaborative partnership, to review products and discuss study progress. All study products will be submitted to the MaineDOT, the City of Portland and PACTS for review and to ensure the study materials and products are consistent with stated objectives, prior to their distribution to the PAC and stakeholders.

The Study Management will follow a CSS approach and use of public outreach with respect to development of the overall recommendations and conclusions. CSS is a multi-disciplinary, collaborative approach that involves all stakeholders to develop a transportation facility that fits its physical setting and preserves scenic, aesthetic, historic and environmental resources, while maintaining safety and mobility. CSS is an approach that considers the total context within which a transportation improvement project will exist. CSS principles include the employment of early, continuous and meaningful involvement of the public and all stakeholders throughout the study process.

Task 1.1.1 Monthly Progress Reports

The Consultant will develop and submit monthly reports documenting the progress of each task during the reporting period. Reporting shall identify activities accomplished during the reporting period, as well as activities anticipated during the next reporting period. The Monthly Progress Report will include a Gantt chart of work performed versus schedule. Monthly Progress Reports shall also identify whether funding is sufficient to complete each task, issues to be resolved, and schedule modifications. Progress reports will accompany the monthly invoices and be in a format specified by MaineDOT.

Task 1.1.2 Quality Assurance/Quality Control (QA/QC)

The Consultant will prepare a plan clearly defining an internal process for ensuring excellence in technical analyses and high quality in all deliverables. The process will include quality control checks that ensure that all deliverables are accurate complete and easy to read and understand and that will assist in keeping the project on schedule and within budget.

Task 1.2 Project Schedule

Consultant shall, within 4 weeks of Notice to Proceed, provide a detailed study baseline schedule, indicating milestones, major activities, and deliverables, to MaineDOT, City of Portland, and PACTS for review and comment. Consultant shall update the schedule as required.

TASK 2 Coordination

Task 2.1 Public Advisory Committee

The primary responsibility of the Public Advisory Committee (PAC) will be to participate in the overall study process, provide and disseminate information, review and comment on draft documents and address specific issues associated with the development of study recommendations. The PAC's role is advisory only by providing a broader

Franklin Street Phase II Feasibility Study
Scope of Work
Revised Draft

range of insights, history, data, and reaction to study direction and findings. The PAC will consist of staff of MaineDOT, City of Portland, FHWA, PACTS, and other potential key stakeholders such as neighborhood associations, downtown district, Chamber of Commerce, transit providers, real estate brokers, property owners, local business owners, local business organizations, and bicycle/pedestrian advocates. Membership of the PAC will be built upon a revitalized Franklin Street Phase I Committee membership list. Beyond contacting those former members, MaineDOT, City of Portland, and PACTS will identify additional potential PAC members. It is assumed that MaineDOT, the City of Portland, and/or PACTS staff will contact potential members and request their involvement.

The membership will be agreed upon by MaineDOT, City of Portland, and PACTS. It is also expected that each entity identified above will have a designated member. The members will be technically conversant with the major issues within each organization. PAC members will likewise serve as a conduit of communication to their corresponding constituencies.

PAC meetings will be held at points in the study at which comment and input are needed. Up to eight (8) meetings with the PAC are planned to ensure early and continuing participation. These meetings are anticipated at the following intervals:

1. Study Kickoff
2. Purpose and Need, Goals and Objectives, and Evaluation Criteria
3. Data Collection
4. Existing Conditions Analysis
5. Future Condition Analysis
6. Alternatives Development
7. Alternatives Evaluation
8. Recommendations and Draft Report

These meetings are anticipated to last up to two (2) hours each.

The Consultant will:

1. Maintain a database of PAC members;
2. Be responsible for scheduling the date, time, identifying the meeting location, preparing comment sheets and sign-in sheets, and developing meeting notices for MaineDOT, City of Portland, and PACTS approval;
3. Send (ground mail or email) meeting reminders to each PAC member three days prior to each meeting;
4. Distribute/ publish (ground mail, email) PAC meeting notices and agenda to PAC members and post meeting notices and agenda on the study web site, two weeks prior to the scheduled meeting;

Franklin Street Phase II Feasibility Study

Scope of Work

Revised Draft

5. Distribute/publish (ground mail, email) PAC meeting minutes and posting notices and agenda on the study web site within two weeks following the scheduled meeting; and
6. At the direction of MaineDOT, City of Portland, and PACTS distribute/ publish (ground mail, email) all draft documents to each PAC member for their review and comment, at least two weeks prior to a scheduled meeting such document will be discussed.

Task 2.2 Agency Coordination Meetings

MaineDOT, City of Portland, PACTS, and the Consultant will meet as necessary to coordinate with regulatory agencies to report on progress and elicit their input. A maximum of two (2) meetings is assumed.

Task 2.3 Municipal Official Meetings

Up to two meetings will be held with local officials (may include Portland City Council and /or Planning Board) to update and obtain input on possible outcomes. It is anticipated that the Consultant will attend each of these meetings and they will last an average of one hour each.

Task 2.4 City Transportation Committee Meetings

Up to two meetings will be held with local officials (may include Portland City Council and /or Planning Board) to update and obtain input on possible outcomes. It is anticipated that the Consultant will attend each of these meetings and they will last an average of one hour each.

Additional Meetings

Based on progress made during each task, if MaineDOT, City of Portland, or PACTS determines that additional meetings are needed to meet the requirements of the study, MaineDOT, City of Portland, PACTS, and the consultant will first make adjustments to the budget allocations by task to accommodate the additional meeting(s). Budget reallocation actions will be determined jointly by MaineDOT, City of Portland, PACTS, and the Consultant, and the total number of meetings will be tracked closely to spend resources appropriately. In the event that budget reallocation cannot fully account for additional meetings, MaineDOT, City of Portland, and PACTS, at their discretion, may provide additional compensation to the Consultant at actual cost, or may condense or disallow other scope items.

Task 3 Public Outreach

Because of the numerous stakeholders associated with this study, this Public Outreach task is intended to supplement Task 2 Coordination activities.

Task 3.1 Public Involvement Plan

The consultant will develop a Public Involvement Plan (PIP) in a manner to sustain stakeholder involvement and support. A draft plan will be submitted to MaineDOT, the City of Portland, and PACTS for review and comment upon project initiation. Comments received will be incorporated into the plan and it will be presented to the PAC at their initial meeting. The PIP will guide MaineDOT, the City of Portland, and PACTS

Franklin Street Phase II Feasibility Study
Scope of Work
Revised Draft

in its approach to obtaining public input and providing information to the public. The PIP shall be prepared as a stand-alone report and posted to the Study website.

Task 3.1 Public Informational Meetings

Three public information meetings are planned at the following key milestones in the study process (1) during development of the purpose and need, goals and objectives, and evaluation criteria (2) upon completion of the existing conditions analysis and projection of future baseline conditions and (3) upon completion of the alternatives analysis and prior to the release of the final study report. Public informational meetings will include presentations, but the majority of the time will be devoted to eliciting information and feedback.

The Consultant will be responsible for:

- Scheduling the date, time and meeting location, developing handout material, preparing and giving presentations;
- Preparing all display graphics needed. MaineDOT, City of Portland, and PACTS shall review all display graphics prior to publication;
- Developing draft meeting minutes and summary of the comments received at each meeting and making changes based on MaineDOT, City of Portland, and PACTS review and comments;
- Publishing/ posting the approved meeting minutes on the study web site; and
- Maintaining a log of each meeting.

It is anticipated that each of these meetings will be attended by the consultant team, along with MaineDOT, City of Portland and PACTS staff.

Task 3.2 Website Development and Maintenance

The Consultant will develop a study webpage accessed through the City of Portland's website home page and from a link on the MaineDOT and PACTS websites. The web page shall be hosted on the City of Portland's website home page and the title of the web page shall be the name of the study. Establishing a link to the project web page from other web pages is assumed to be the responsibility of the involved agencies. This study web page will include portions of the materials developed throughout the study, including study schedule, locations and times for public meetings, membership of the PAC, PAC meeting notes, project information (e.g. publish reports), and MaineDOT, City of Portland, and PACTS contacts. In addition, the website will feature opportunities to submit questions and comments electronically. The web site will be updated as needed for the duration of the study.

Task 3.3 Ongoing Media Public Relations

To ensure the general public is made aware of the progress of committees and emergent recommendations. The Consultant will maintain ongoing reporting to the full array of media outlets to encourage increased awareness and support the public process. Work

Franklin Street Phase II Feasibility Study
Scope of Work
Revised Draft

proactively with reporters on an ongoing basis to enhance their understanding and support for the Study and Study partners.

Task 3.4 E-mail Distribution Database

The Consultant will compile and maintain a separate database of e-mail addresses for residents and other stakeholders who have expressed an interest in keeping apprised of the study's progress through electronic means. The interested party list is an open list that will be added to on a regular, as-needed basis, via meetings, web site, etc.

Task 3.5 Response to Public Comments

The Consultant shall prepare a draft response to all inquiries and comments submitted through Public Outreach opportunities. All draft responses shall be submitted to the MaineDOT, City of Portland, and PACTS for review. Responses will be sent either by the Consultant or by MaineDOT.

Task 3.6 Deliverable

Public Involvement Plan, database, up-to-date Study website, and a knowledgeable and supportive media person who will readily generate balanced publicity on Franklin Street issues and progress.

TASK 4 Purpose and Need, Goals and Objectives, Evaluation Criteria

The study purpose and need drives the process for alternatives consideration, in-depth analysis, and ultimate selection.

Task 4.1 Purpose and Need Statement

Building upon Phase I and in conjunction with MaineDOT, City of Portland, PACTS, stakeholders, and the Public, the consultant will develop a draft Purpose and Need Statement to document the transportation deficiencies in the Study Area and related goals and objectives. MaineDOT, City of Portland, and PACTS must approve the Purpose and Need Statement prior to conducting further study analysis. Potential alternatives will be evaluated, in part, based upon their ability to meet the stated Purpose and Need Statement. The Need will be documented in the form of transportation measures and may also include land use, social, environmental, and economic factors. The Purpose and Need Statement will be summarized with appropriate narrative, tabulations, and graphics in the Draft and Final Report.

Task 4.2 Goals and Objectives

The consultant will recommend a set of study goals and objectives consistent with the Purpose and Need Statement. These goals and objectives will serve as the benchmark against which the performance of each alternative is measured. This will be done in coordination with MaineDOT, City of Portland, PACTS, stakeholders, and the public.

Task 4.3 Evaluation Criteria

Building upon the performance criteria as identified on pages 24-25 of the Phase I report and in conjunction with MaineDOT, City of Portland, PACTS, and stakeholders, the

Franklin Street Phase II Feasibility Study
Scope of Work
Revised Draft

consultant shall develop evaluation criteria for review and approval by MaineDOT, City of Portland, and PACTS. The evaluation criteria are specific considerations, or measures of effectiveness, used to assess benefits and impacts of alternatives developed during the study. The evaluation criteria will be based on the defined goals and objectives. Such criteria commonly include, but are not limited to, those that fall in the following categories: mobility, safety, design, environmental effects, land use and economic development, community effects, constructability, and construction cost.

The evaluation criteria will be used for Task 9 (Alternatives Evaluation) of the study. The criteria should be logically related to objectives, and wherever possible, be quantitatively measured and directly derived from either previously developed information or analysis techniques used in the study. All evaluation criteria containing both quantifiable or more subjective, qualitative measures of effectiveness should be used to determine the best solutions for the defined goals and objectives.

Task 4.4 Deliverable

A technical memorandum will be prepared that documents the study purpose and need, goals and objectives, and evaluation criteria and measurement methods.

TASK 5 Data Collection and Compilation

Data collection will illustrate relevant transportation, environmental, socioeconomic, and land use planning data, as well as historic growth data to establish a baseline condition for 2010. It is the goal of this study to make use to the fullest extent possible all existing data. Conversely, some of the data collected in the previous studies will require updating.

Task 5.1 Study Area Base Maps

The Consultant will develop digital base maps at several scales to respond to the need to visually display a variety of data types over the study area. Base maps will range in scale from 1"=200' to display the overall study area to a scale of 1"=50' to display locally significant information.

All mapping and plans prepared for use in this study will be in English units. Base mapping will be prepared using the latest available aerial images or other photo bases to create base maps for the study area. All maps will be produced using the same coordinate system to facilitate comparisons and production of overlays.

A Geographic Information System (GIS) data system will be used throughout the study as a strategic tool for understanding the effects of the alternatives. Where feasible, existing GIS information will be scaled to the mapping, and adjusted based on information from limited field reconnaissance and interpretation of aerial photography. Existing GIS data will be supplemented by new data derived from field observations in accordance with data collection efforts identified under other tasks in this scope.

Franklin Street Phase II Feasibility Study

Scope of Work

Revised Draft

Other computer aided design (CAD) mapping (e.g., local zoning, comprehensive plan, right-of-way, etc.) will be overlaid on these base maps.

Task 5.2 Transportation Data

The following is a description of the tasks envisioned to set forth the traffic baseline data.

Task 5.2.1 Previous Reports and Studies

As mentioned previously, it is the goal of this study to use all relevant data. The Consultant will collect all available and existing technical data through review of existing planning and technical reports, existing GIS data, and available statistics on existing roadway, land use, and market conditions that have been conducted within and in the vicinity of the study corridor. This data will be used to frame existing and future conditions within the study area. Some examples of previous reports and studies include but are not limited to:

- A New Vision for Bayside
- Downtown Vision
- Eastern Waterfront Master Plan
- Franklin Revisioning Report
- Green Spaces/ Blue Edges
- Portland's Housing Plan
- Portland's Economic Development Plan
- Reclaiming Franklin Street
- Rethinking Portland's Gateway
- East Bayside Neighborhood Study
- Portland's Peninsula Transit Study
- Portland's Comprehensive Plan
- Eastern Waterfront Building Height Study
- Bus Rapid Transit & Light Rail Transit
- PACTS Regional Bicycle & Pedestrian Plan Update

Task 5.2.2 Currently Planned or Programmed Transportation Improvements

The Consultant will review reports and plans associated with the study area provided by the City of Portland, MaineDOT, PACTS, and others.

Task 5.2.3 Roadway Characteristics

The Consultant will conduct a field verification reconnaissance of the study area. The field reconnaissance will collect data such as number of lanes, lane width, shoulder width, right and left turn lane storage lengths, horizontal alignment, vertical grades, pavement markings, regulatory and way-finding signage, sight distances, traffic controls, railroad track configurations, bus stop locations, and bicycle and pedestrian facilities. The data will be used in the analysis of current traffic and future traffic operations.

Franklin Street Phase II Feasibility Study
Scope of Work
Revised Draft

In addition to an inventory of roadway conditions, the Consultant will collect information at all intersections. The data will include such items as number and width of approach lanes, turning lanes, traffic control, on-street parking, stopping sight distances, traffic signal hardware, signing, traffic signal phasing and sequencing, pedestrian and bicycle accommodation, and other factors affecting traffic flow and traffic safety.

To accomplish this task, the Consultant will solicit base data such as plans, traffic signal data and other inventories from the City of Portland, PACTS and MaineDOT. All data will be field verified by the Consultant as part of this subtask.

Task 5.2.4 Existing Traffic Volumes

This subtask will collect current corridor traffic counts as a basis for validating and calibrating the travel models, identifying corridor traffic growth, understanding corridor vehicle composition, and as a basis for future intersection analysis and design.

The Consultant will collect Monday thru Friday Automatic Traffic Recorder (ATR) counts at the following locations:

1. Franklin Street
 - northwest of Commercial Street
 - southeast of Cumberland Avenue
 - northwest of Cumberland Avenue
 - southeast of Marginal Way
 - southeast of Congress Street
2. Commercial Street
 - northeast of Franklin Street
 - southwest of Franklin Street
3. Cumberland Avenue
 - northeast of Franklin Street
 - southwest of Franklin Street
4. Congress Street
 - northeast of Franklin Street
 - southwest of Franklin Street
5. Marginal Way
 - northeast of Franklin Street
 - southwest of Franklin Street
6. I-295 Northbound On-Ramp from Franklin Street
7. I-295 Northbound Off-Ramp to Franklin Street
8. I-295 Southbound On-Ramp from Franklin Street

Franklin Street Phase II Feasibility Study
Scope of Work
Revised Draft

9. I-295 Southbound Off-Ramp to Franklin Street

The Consultant will also collect typical weekday 12-hour manual intersection turning movement counts at the study intersections in the corridor per MaineDOT data collection guidelines. The counts will be conducted within the same week from 6:00 AM – 6:00 PM. Every effort will be made to collect ATR and manual intersection turning movement count data during the school year (June or September) and during periods when no roadway incidents or construction occur. The turning movement counts will classify vehicles into three categories: light vehicles, single-unit trucks, and combination trucks. In addition queue observations at each of the intersections listed below will be collected during the same time period.

The following are the intersections in the corridor where counts will be taken:

1. I-295 Southbound On/Off-Ramps and I-295 Northbound Off-Ramp and I-295 Northbound On-Ramp¹
2. Franklin Street and Marginal Way¹
3. Franklin Street and Fox Street and Somerset Street¹
4. Franklin Street and Cumberland Avenue
5. Franklin Street and Congress Street
6. Franklin Street and Middle Street
7. Franklin Street and Fore Street
8. Franklin Street and Commercial Street

¹ Turning movement counts were collected at these intersections on June 2 and 3, 2009 and an appropriate growth factor was applied to calculate existing 2010 counts. No new turning movement counts will be collected at these intersections as part of this study. Supplemental bicycle and pedestrian counts and queue observations may be needed at these intersections.

12-hour manual bicycle and pedestrian counts will be conducted concurrently at all intersections listed above. In addition to the intersections, midblock crossings will be collected during the same time period. The exact midblock crossing locations will be decided after Task 5.3 (Pedestrian and Bicycle Facilities) to ensure that the counts occur where they are most logically needed.

Task 5.2.5 Corridor Travel Time and Delay Runs

The travel time runs will employ the floating car technique, in which a test vehicle enters the existing travel stream and records time and distance between major cross streets. The

Franklin Street Phase II Feasibility Study

Scope of Work

Revised Draft

travel times between these major points will be averaged from several runs during both peak periods.

The travel runs will be taken for two days during the same time (12-hour period) when collecting turning movement data. The travel runs will be conducted on Franklin Street from Marginal Way to Commercial Street.

Task 5.2.6 Crash Data

The Consultant will obtain the latest available three years of crash data from the MaineDOT for the study area.

Task 5.3 Pedestrian and Bicycle Facilities

The Consultant will collect available data on bicycle and pedestrian facilities (sidewalks, bicycle and pedestrian trails/pathways, and bicycle parking) within the study area from field reconnaissance and local sources including applicable pedestrian/bicycle groups, organizations, and committees. Locations of gaps in bicycle and pedestrian facilities, substandard, or discontinuous facilities, activity or evidence such as beaten paths will be noted.

The Consultant will also identify bicycle and pedestrian networks and trails within area of influence as well as any state designated bicycle routes.

Task 5.4 Transit Services

The Consultant will collect available data on existing transit operations to determine transit usage within the study area. Information will include hours of service, service routes, frequency of service (peak hours and off-peak hours), ridership levels, transit stops, fares, and parking capacity. The Consultant will also identify transit networks affecting the study area.

Task 5.5 Park and Ride

MaineDOT will make available to the Consultant for examination parking utilization data for the park-and-ride facilities serving the study area to determine the existing capacity and current utilization of these facilities.

Task 5.6 Land Use and Development Data

The following is a description of the tasks envisioned to identify current utilities, right-of-way, land use patterns, zoning, socio-economic characteristics, and comprehensive planning.

Task 5.6.1 Utilities

Ensure that utilities in the corridor are considered in any design solutions proposed. Since sewer and water, extensions are the primary basis for urban development in the Study Area, existing service areas and proposed extensions are an essential component of understanding development patterns and trends in the corridor.

Franklin Street Phase II Feasibility Study
Scope of Work
Revised Draft

The Consultant shall perform a utility review for potentially affected utilities in the study area. Consultant shall be responsible to contact and communicate with relevant utility companies to gather information on existing and proposed utilities including, but not limited to water, electric, gas, communication, storm drain, and sewer utilities. As part of this search, Consultant shall include both a field review and review of available as-built drawings and encroachment permits for the study area. The results of this review shall be a database of utility records indicating type of utility, capacities, owner, and other relevant information. Consultant shall also prepare a base utilities map of the study area showing locations of all existing and proposed utilities.

Task 5.6.2 Existing Right-of-Way

The Consultant will identify current right-of-way along the corridor. This will ensure that all properties along the corridor are considered in any design solutions proposed. Consultant shall prepare a base right-of-way map of the study area showing all right-of-way within the study area.

Task 5.6.3 Existing Land Uses

This subtask will identify and quantify existing and pending land uses in the Franklin Street corridor.

The Consultant will obtain existing land and building use information from a variety of sources to provide detailed land and building use mapping within the study corridor. General land and building use mapping will be provided for areas up to one quarter mile outside of the study corridor. The Consultant will utilize the data and analysis developed for the Phase I Study to complement any new data collection efforts that must be undertaken for this study.

In addition, development projects that have been applied for and/or approved will be inventoried and mapped through contacts with the City of Portland and MaineDOT.

Task 5.6.4 Existing Zoning

This subtask will provide the basis for analyzing and quantifying future development potential in the corridor.

The Consultant will identify and produce a digitized overlay map of existing zoning district boundaries with appropriate zone designations within one quarter mile of the study area.

Task 5.6.5 Vacant or Underutilized Land Development

The Consultant will identify vacant and underutilized parcels within one quarter mile of the study area. This data will be used to make a determination as to their physical capacity to support future development. This will be accomplished by:

- Review of aerial mapping and field verification to identify vacant and redevelopable parcels.

Franklin Street Phase II Feasibility Study

Scope of Work

Revised Draft

- Review of utility services available to each parcel (water, sewer, public access).
- Review of GIS mapping of environmental constraints, developed as part of Task 5.7 (Environmental Resources), to development relative to property boundaries for the vacant and redevelopable parcels.
- Discussion of findings with the City of Portland planning staff.
- Field observations.

Task 5.6.6 Socioeconomic Characteristics

This subtask will provide the basis for analyzing and quantifying the effects of the alternatives on socioeconomic conditions in the corridor.

The Consultant will document existing socioeconomic conditions within the study corridor, at a minimum, collect data on: population, households, income levels, employment and unemployment trends and rates, school enrollments and budgets, commuting characteristics, types of businesses, and real estate trends and values. Information that is relevant to the socioeconomic analyses developed in Phase I will be used to the extent practicable.

The Consultant will identify, describe, and map communities and neighborhoods within or abutting the study. In addition, a description of the municipal services provided within the study area, including the location of emergency services and school bus routes will be gathered.

Task 5.7 Environmental Resources

It is important to provide a “snapshot” of the physical resources in the study area. The mapping and identification of these resources are important in identifying constraints that may preclude improvement of transportation corridors or limits on development adjacent to corridor.

An inventory of some of these resources may be currently available in GIS format. The Consultant will determine available resource data; what level of data is needed to satisfy future NEPA/STPA work and other local planning initiatives.

At a minimum the following resources are included in this task:

- Community facilities and cultural resources
- Public Parks and Recreation Lands
- Section 4(f) and Section 6(f) properties
- Physical Geography, Soils and Geology
- Groundwater Resources and Surface Water Resources
- Vegetation
- Wildlife Habitat
- Wetlands and Hydric Soils
- Floodplain
- Threatened and Endangered Species

Franklin Street Phase II Feasibility Study

Scope of Work

Revised Draft

- Vernal Pools
- Historic Resources
- Hazardous waste sites

Existing hazardous waste sites are anticipated to be included in this effort. Data on existing sites is assumed available from the Department of Environmental Protection (DEP) and the U.S. Environmental Protection Agency (EPA). In the event that an alternative might affect these resources or be influenced by them, limited field assessments may be warranted.

Task 5.8 Deliverable

The Consultant will prepare a Data Collection Technical Memorandum which contains the information collected and developed for Task 5 (Data Collection and Compilation) and will be incorporated in the deliverables of subsequent tasks.

TASK 6 Existing Conditions Analysis

Using data collected as part of Task 5 (Data Collection and Compilation), the Consultant will analyze, describe, and evaluate existing conditions. The following subtasks describe the process of evaluating and describing existing conditions.

Task 6.1 Transportation

Task 6.1.1 Design Hour Traffic Volumes

Based on the study area traffic data collected, the Consultant will compute the AM peak hour and PM peak hour traffic, pedestrian, and bicycle volumes for the study area. The design hour volumes (DHV) will be developed based on the daily and hourly variations. These volumes will be utilized to create a typical weekday traffic network turning movement diagram for the study area. The Consultant will coordinate with MaineDOT's Transportation Analysis section to have the existing traffic networks validated, and will revise the traffic networks as necessary. These traffic volumes will be used in the analysis of current traffic operations in the study area.

In addition, the Consultant will determine the peak hour factor and heavy vehicle adjustment by approach for each of the study area intersections under AM and PM scenarios.

Task 6.1.2 Existing Traffic Operations Analysis

The Consultant will use the data collected and assembled previously along with information developed under Task 6.1.1 (Design Hour Traffic Volumes) to conduct an analysis of the AM peak hour and PM peak hour traffic operations, including pedestrians, bicyclists, and transit.

Using the data collected and assembled previously along with information developed under Task 6.1.1 (Design Hour Traffic Volumes), the Consultant will develop a computerized traffic simulation model to analyze the existing AM peak hour and PM peak hour traffic operations. These analyses shall use the methodology of the

Franklin Street Phase II Feasibility Study
Scope of Work
Revised Draft

Transportation Research Board's current version of the Highway Capacity Manual, and will be conducted using a combination of the current version of Synchro analysis software and appropriate multi-modal simulation software.

The Consultant will perform a reasonable level of validation that will enable a meaningful comparison of existing and future conditions, as well as to evaluate study alternatives. For example, the Consultant will validate to traffic volumes, overall travel time, and queue lengths.

The following measures of effectiveness (MOE) will be reported: travel time, average travel speed, approach delay, overall control delay, arterial, intersection, pedestrian, and bicycle level of service (LOS), volume to capacity ratio (v/c), vehicle-hours traveled, fuel consumption, emissions (e.g. nitrogen oxides, carbon monoxide, and hydrocarbon), queue length (50th and 95th percentile), and vehicles denied entry to the simulation model.

Task 6.1.3 Crash Analysis

The Consultant will provide a qualitative assessment of crash information along the Franklin Street study corridor utilizing the most recent three years of data provided by MaineDOT, obtained under Task 5.2.6 (Crash Data). The number of reported crashes will be highlighted for intersections and roadway segments, along with a tabular or graphical summary of monthly variation, time of day, severity, collision type, road conditions, weather and other environmental factors. In addition, the Consultant will identify any High Crash Locations (HCL's) as well as pedestrian and bicycle crashes. HCL's are defined according to MaineDOT as experiencing eight crashes per year over a three year period and the Critical Rate Factor (CRF is crash rate divided by expected crash rate) exceeds 1.0. The Consultant will prepare collision diagrams for any HCL.

The result of this task will be to suggest approaches for improving the corridor by considering Crash Modification Factors (CMF) and the effectiveness of potential countermeasures to be considered in Task 8 (Alternatives Development) and Evaluated in Task 9.1.2 (Safety Analysis).

Task 6.1.4 Assessment of Roadway Geometry and Physical Characteristics

The Consultant will qualitatively assess the condition of Franklin Street within the Study Area based on appropriate design recommendations set forth through MaineDOT and AASHTO, including but not limited to pavement width, horizontal alignment, vertical grades, and stopping sight distance at intersections or where the community outreach process identifies critical safety locations. Areas determined to have design deficiencies will be noted. Other characteristics such as worn pavement markings, missing signs or signs that are in poor condition will also be assessed.

Franklin Street Phase II Feasibility Study
Scope of Work
Revised Draft

Task 6.2 Bicycle and Pedestrian Facilities Assessment

Task 6.2.1 Bicycle and Pedestrian Facilities

The Consultant will assess pedestrian and bicycle facilities within the study area based on data collected under Task 5.3 (Pedestrian and Bicycle Facilities). The primary focus of this analysis will be to identify gaps in the bicycle and pedestrian system, including street crossing and connectivity barriers, incomplete sidewalks and bikeways, and insufficient connections with adjacent neighborhoods to help identify potential strategies for the continuity of sidewalks and pedestrian accommodations and bicycle accommodations within the Study Area. A qualitative assessment will be made of pedestrian and bicycle accommodations at transit facilities within the study area.

A review of existing and planned trails within or near the study area will be made to assess the potential of these facilities to benefit the development of a comprehensive pedestrian system.

Roadway conditions affecting bicycle travel within the corridor (i.e. shoulder widths, vehicular travel speeds, percent heavy vehicles, etc.) will be reviewed and deficiencies noted.

In addition, desire lines between neighborhoods, business districts, and nodes such as shopping, restaurants, schools, and parks will be established on a GIS layer. The analysis performed in connection with land use will also note potential paths of access for pedestrians and bicycles.

Task 6.2.2 Qualitative ADA Compliance Review

The Consultant will provide a qualitative review of the study area pedestrian accommodations with regards to current Americans with Disabilities Act (ADA) regulations. The primary focus of this analysis will be accessible curb ramps at intersections, accessible transit facilities, and corridor ADA deficiencies.

Task 6.3 Transit System Assessment

The Consultant will summarize the findings from Task 5.4 (Transit Services) including hours of service, service routes, frequency of service (peak hours and off-peak hours), ridership levels, transit stops, fares, and parking capacity. Utilizing this data, the Consultant will identify any gaps in the existing provision of transit service and the pedestrian network providing access to transit facilities. Additionally, opportunities to improve the system identified through evaluation of the current service and interviews with transit users, transit providers, and PAC will be identified. This assessment will identify deficiencies and opportunities for transit improvement.

Task 6.4 Land Use and Development

Task 6.4.1 Existing Land Use, Public Utilities, and Municipal Zoning

The Consultant will analyze existing land use, existing and planned public utility service levels, planned or programmed developments reasonably expected to be constructed and

Franklin Street Phase II Feasibility Study
Scope of Work
Revised Draft

current zoning regulations to assess and characterize current development trends within the quarter-mile wide linear corridor.

Task 6.4.2 Existing Market Conditions

The Consultant will evaluate existing market conditions within the study area for various real estate development markets including, by way of example, retail, residential (multifamily, age restricted, etc), office, hospitality, and light industrial. The Consultant methodology will be to develop current baseline data on existing markets from readily available data sources, including discussion with Economic Development Agency for the City, and correlate the baseline information with demographic trend data.

Task 6.4.3 Assessment of Vacant & Under-Utilized Land Development Potential

The Consultant, working closely with City staff from Planning, Economic Development and Public Services, will prepare an analysis of vacant and underutilized parcels of land within the corridor and make a determination as to the capacity of those parcels to support additional development based upon physical conditions as identified in Task 5.6 (Land Use and Development Data), current zoning, discussions with municipal planning staff, and the future availability of public utility services. Current and projected development from the Bayside Master Plan work, and projected waterfront development plans will be considered with this assessment.

Task 6.5 Environmental Review

Based on the findings of Task 5.7 (Environmental Resources), the Consultant will review the information collected and describe and map identified environmental constraints that may influence future land use and transportation resource decisions within the study area.

Task 6.6 Deliverable

The products of this task will be incorporated in the deliverables of subsequent tasks. In addition, the Consultant will document the findings of Task 6 (Existing Conditions Analysis) in an Existing Conditions Report and document the technical procedures used in this process.

- The resulting report will depict existing traffic volume networks, and will outline findings from the traffic operational analyses, roadway and geometrics reviews, and crash analysis.
- Other transportation data collected beyond volume, operation and safety will be summarized and presented in the report.
- All of the data collected under the Land Use and Development Conditions will be summarized in the report and included on GIS maps with different layers outlining such items as historic and cultural resources, environmental sensitive areas, current land use, zoning, development projects, etc. Other information such as vacant land and build out scenarios will be included under the existing conditions.

Franklin Street Phase II Feasibility Study
Scope of Work
Revised Draft

- The data collected from corridor travel time and delay runs will also be presented in summary graphic and tabular formats. This data will further identify travel delays during peak commuting times along the Franklin Street corridor.

TASK 7 Future Conditions

This task involves developing a future analysis of the traffic conditions within the study area. The Consultant will work closely with MaineDOT's Transportation Analysis and PACTS team members throughout this process. Their expertise will be a valuable asset in this effort. This analysis shall be consistent with the land use forecast in the latest PACTS model and PACTS Long Range Plan. There are several steps involved in this task, as presented below.

Task 7.1 Assess Future Land Use Conditions

Task 7.1.1 Currently Proposed Developments in the Corridor

Based on discussions with municipal planning, zoning, and economic development officials, the Consultant will document the amount and type of development by location approved and programmed for development within or adjacent to the Study Area. In addition, based on the foregoing discussions, the Consultant will develop a list of projects by location, type and amount in the development approval process with reasonable expectation of approval and construction by 2035.

Task 7.1.2 Market Potential

The Consultant will prepare estimates of the future market potential within the study area for the various real estate development markets as identified in Task 5 (Data Collection and Compilation). The estimates will be provided on a phased basis for the period between 2010 and 2035. The Consultant's methodology will be to apply demographic and economic forecasts to existing information developed under Task 6 (Existing Conditions Analysis).

Task 7.1.3 Property Reinvestment Assessment

The Consultant will review developed commercial properties within the study area to assess what, if any, expansion or redevelopment potential they may possess. This analysis will be based upon existing or reasonably anticipated conditions including the availability of utilities, future market potential, and zoning entitlements. Locations where market and existing land use conditions favor consolidation of parcels for development will be identified.

Task 7.1.4 Assessment of Future Development Potentials

Utilizing the data gathered in earlier tasks, the Consultant will identify undeveloped parcels and buildings within the study area that are potentially available for future development or redevelopment and prepare estimates that characterize and quantify development that is likely to occur based upon market projections, corridor conditions, the availability of public utility services, and current zoning.

Franklin Street Phase II Feasibility Study
Scope of Work
Revised Draft

Task 7.1.5 Identification of Major Traffic Generators

The Consultant will review the inventory of buildings and parcels and future market trends to determine potential for future major traffic generators within the study area and applications where Traffic Demand Management (TDM) should be anticipated to be utilized.

Task 7.2 Future Land Use

The Consultant, working with MaineDOT, City of Portland, and PACTS and the PAC, will develop a future conditions land use map for a width up to one quarter mile on each side of the Franklin Street right-of-way for the year 2035. The preferred land use map will be based on the vision statement for the corridor as developed in Phase I while incorporating the findings of the existing conditions assessment for land use and future market potential.

Task 7.3 Traffic Forecast

Task 7.3.1 2035 No-Build Model Volumes

Based on the PACTS travel demand model, data collected under Task 5 (Data Collection and Compilation), the Future Land Use map created in Task 7.2 (Future Land Use), and the anticipated transportation alternative strategies on the Portland Peninsula the consultant shall develop future year 2035 baseline conditions. The Consultant will prepare traffic forecasts consisting of directional link volumes (AM, PM, and daily), AM and PM turn movements for the intersections listed in Task 5.2.4 (Existing Traffic Volumes), peak hour factor (PHF), traffic composition (i.e., passenger cars, single unit trucks, and tractor trailers), and pedestrian and bicycle movements. This forecast will incorporate anticipated improvements to transit services within the study area during that timeframe.

Task 7.3.2 2035 Build Model Volumes

Based on the PACTS travel demand model, data collected under Task 5, the Future Land Use map created in Task 7.2 (Future Land Use), and the anticipated transportation alternative strategies on the peninsula the consultant shall develop future year 2035 traffic forecast for each of the study alternatives identified in Task 8 (Alternatives Development). The Consultant will prepare traffic forecasts consisting of directional link volumes (AM, PM, and daily), AM and PM turn movements for the intersections listed in Task 5.2.4 (Existing Traffic Volumes), peak hour factor (PHF), traffic composition (i.e., passenger cars, single unit trucks, and tractor trailers), and pedestrian and bicycle movements. This forecast will incorporate anticipated improvements to transit services within the study area during that timeframe.

During this subtask, the Consultant will also prepare year 2035 traffic assignments with the alternatives plus the reconnection of Lancaster Street, Oxford Street, Newbury Street, and Federal Street. The Consultant will forecast both right in/right out only turning movements and all turning movements using the latest PACTS Traffic Modeling forecasts to 2035.

Franklin Street Phase II Feasibility Study
Scope of Work
Revised Draft

Task 7.4 Bicycle and Pedestrian

Any potential changes in the desire lines for pedestrian and bicycle travel based on land use trends or specific planned developments will be documented and used to forecast 2035 pedestrian and bicycle travel demand.

Task 7.5 2035 Transit Demand

Using data gathered from Task 7.1 (Assess Future Land Use Conditions), the Consultant will forecast 2035 transit service needs, and identify potential future transit demand areas within the study area.

Task 7.6 Deliverable

The products of this task will be incorporated in the deliverables of subsequent tasks. The Consultant will document the findings of Task 7 (Future Conditions) in a Draft Future Conditions Report and document the assumptions used in this process. The format of the document will be primarily graphic, in the form of tables, graphs, and charts.

TASK 8 Alternatives Development

Task 8.1 Alternatives

Phase I developed three (3) conceptual plans for addressing challenges and opportunities for the Franklin Street. This study will analyze these 3 plus the No-Build, a combination of the 3 build alternatives, and any other alternatives that may be developed that meet the purpose and need.

1. No-Build Alternative
2. The Multi-Way Boulevard Alternative
3. Urban Street Alternative
4. The Urban Parkway Alternative
5. Combination of the 3 build Alternatives
6. Other

Both 2D and 3D visualization techniques will be used to represent the alternatives. The purpose of all visualizations will be to improve comprehension of the alternatives and understanding of their potential impacts.

Task 8.2 Deliverables

The Consultant will document the alternatives in a Draft Alternatives Development Report and document the assumptions used in this process. This report will include descriptions, maps, and graphics of the alternatives.

TASK 9 Alternatives Evaluation

This task includes a detailed analysis of the alternatives identified in Task 8 (Alternatives Development). The analyses will address all of the relevant evaluation criteria measures of effectiveness and will be summarized in matrix format.

Franklin Street Phase II Feasibility Study
Scope of Work
Revised Draft

Task 9.1 Transportation Performance

Task 9.1.1 Vehicle Analysis

Task 9.1.1.1 2035 No-Build Analysis

Using the data collected and assembled previously along with information developed under Task 7.3.1 (2035 No-Build Model Volumes), the Consultant will develop a computerized traffic simulation model to analyze the 2035 No-Build AM peak hour and PM peak hour traffic operations. These analyses shall use the methodology of the Transportation Research Board's current version of the Highway Capacity Manual, and will be conducted using a combination of the current version of Synchro analysis software and appropriate multi-modal simulation software.

The following MOE will be reported: travel time, average travel speed, approach delay, overall control delay, arterial, intersection, pedestrian, and bicycle level of service (LOS), volume to capacity ratio (v/c), vehicle-hours traveled, fuel consumption, emissions (e.g. nitrogen oxides, carbon monoxide, and hydrocarbon), queue length (50th and 95th percentile), and vehicles denied entry to the simulation model.

Task 9.1.1.2 2035 Build Analysis

Using the data collected and assembled previously along with information developed under Task 7.3.2 (2035 Build Model Volumes), the Consultant will develop separate computerized traffic simulation models to analyze each of the 2035 Build AM peak hour and PM peak hour traffic operations. These analyses shall use the methodology of the Transportation Research Board's current version of the Highway Capacity Manual, and will be conducted using a combination of the current version of Synchro analysis software and appropriate multi-modal simulation software.

The following MOE will be reported: travel time, average travel speed, approach delay, overall control delay, arterial, intersection, pedestrian, and bicycle level of service (LOS), volume to capacity ratio (v/c), vehicle-hours traveled, fuel consumption, emissions (e.g. nitrogen oxides, carbon monoxide, and hydrocarbon), queue length (50th and 95th percentile), and vehicles denied entry to the simulation model.

In addition, the consultant will determine if any additional traffic signals are warranted for analysis within the study area under future traffic conditions.

Task 9.1.2 Safety Analysis

The Consultant will analyze the traffic safety impacts within the study corridor for each alternative to the degree feasible using published research and engineering practice, including examining the impacts on pedestrian and bicycle in the study area.

Task 9.1.3 Street Reconnection Analysis

As recommended in Phase I, the Consultant will identify the potential for side streets that are reasonable candidates for reconnection including Lancaster Street, Oxford Street, Newbury Street, and Federal Street. The Consultant will use the appropriate multi-modal simulation software to simulate traffic conditions with the side streets connected in

Franklin Street Phase II Feasibility Study
Scope of Work
Revised Draft

various combinations to assess the impact on the corridor itself and to other major side streets. Another possibility is that certain side streets be converted to right-in/right-out only. This would also be evaluated using the appropriate multi-modal simulation software. The Consultant will evaluate effects of diversions caused by cross street reconnections.

In addition, the Consultant will qualitatively assess the geometrics, including but not limited to sight distance and vertical grade for Lancaster, Oxford, Federal, and Newbury Streets based on appropriate design recommendations set forth through MaineDOT and AASHTO. Where sight distance, vertical grade or operations suggest against vehicular connections of side streets to Franklin Street, pedestrian and bicycle only access should be analyzed and presented for evaluation.

Task 9.1.4 Pedestrian and Bicycle Accommodation

For this subtask, the Consultant will evaluate the potential of introducing pedestrian crossings at up to nine (9) new locations along the corridor using the appropriate multi-modal simulation software. The locations will be determined through discussions with MaineDOT, City of Portland, and PACTS. Changes to the operating conditions from the appropriate multi-modal simulation software runs will be documented, and recommendations will be made regarding incorporating (or not) these crossings into the proposed project.

The issues for bicycles are more related to conditions along the corridor rather than across it. The Consultant will investigate potential bicycle improvements and use the appropriate multi-modal simulation software to simulate their affect on traffic operations.

Task 9.1.5 Transit Impacts Analysis

Under this subtask, the Consultant will also incorporate buses into the appropriate multi-modal simulation software in order to quantify the effects of buses stopping during peak periods. Based on the outcome of these evaluations, the Consultant will make recommendations regarding geometric changes to the roadway (or not) to accommodate buses stopping during peak periods (to minimize traffic flow impacts from the buses).

Task 9.1.6 Peak Hour Parking Analysis

As recommended in Phase I, the Consultant will evaluate the potential of introducing on-street parking into the appropriate multi-modal simulation software and quantify potential delay causes by such vehicles. The locations will be determined through discussions with MaineDOT, City of Portland, and PACTS.

Task 9.1.7 Roundabout Analysis

As recommended in Phase I, the Consultant will investigate the potential of roundabouts at the intersections of Franklin Street with Marginal Way and with Commercial Street. The Consultant will use the current RODEL roundabout design and capacity software to conduct an AM and PM peak hour traffic analysis for all alternatives being considered. Using the RODEL results, the Consultant will use appropriate multi-modal simulation

Franklin Street Phase II Feasibility Study

Scope of Work

Revised Draft

software to develop a computerized traffic simulation model for AM peak hour and PM peak hour traffic operations.

The following MOE will be reported: travel time, average travel speed, approach delay, overall control delay, arterial, intersection, pedestrian, and bicycle level of service (LOS), volume to capacity ratio (v/c), vehicle-hours traveled, fuel consumption, emissions (e.g. nitrogen oxides, carbon monoxide, and hydrocarbon), queue length (50th and 95th percentile), and vehicles denied entry to the simulation model.

In addition, an assessment of how pedestrian and bicycle traffic and the visually impaired would be accommodated at the intersections if roundabouts were to be installed shall be included.

Task 9.2 Design Issues

Task 9.2.1 Conceptual Plans

The Consultant will prepare conceptual layout plans for each alternative for screening purposes and will incorporate aerial mapping developed under Task 5 (Data Collection and Compilation). The conceptual plans shall show proposed edge of pavement/curbs, driveways, pavement striping, horizontal and vertical alignments, major utility impacts, slope limits, major drainage items. These plans will include base plan details and existing and proposed right-of-way. All elements of the conceptual design will be prepared in conformance with applicable requirements of the most current version of Maine Department of Transportation's Highway Design Guide and A Policy on Geometric Design of Highway and Streets and A Guide for Achieving Flexibility in Highway Design, by the American Association of State Highway and Transportation Officials (AASHTO).

Task 9.2.2 Drainage Evaluation

Existing drainage issues relevant to the design of the alternatives will be identified based on information gained during the field review and from the GIS data. An evaluation of these issues will consider possible Best Management Practice requirements and the potential for new discharge locations. The evaluation will be qualitative in nature and will not include capacity calculations.

Task 9.2.3 Constructability

The Consultant will review the alternatives for constructability, and identify possible issues related to the maintenance of traffic (vehicular, pedestrian, bicycle and transit), access to adjacent properties during construction, utility relocations, and other construction issues. The preparation of Traffic Management Plans for each alternative is not anticipated.

Task 9.2.4 Right-of-Way Analysis

Using information from Task 5.6.2 (Existing Right-of-Way) and conceptual layout plans developed under Task 9.2.1 (Conceptual Plans), the Consultant will identify parcel by parcel right-of-way impacts associated with each alternative. Approximate acreages for

Franklin Street Phase II Feasibility Study
Scope of Work
Revised Draft

partial and full takes will be determined and a right-of-way data table will be prepared summarizing the results.

Task 9.2.5 Utility Analysis

Using information from Task 5.6.1 (Utilities) and conceptual layout plans developed under Task 9.2.1 (Conceptual Plans), the Consultant will identify utility impacts for each alternative.

Task 9.2.6 Preliminary Construction Cost Estimate

The Consultant will prepare a conceptual level construction cost estimate (in 2010 dollars) for screening alternatives including construction, right-of-way, preliminary engineering, construction engineering, and environmental mitigation.

Task 9.3 Environmental Analysis

Using the conceptual layout plans developed under Task 9.2.1 (Conceptual Plans) and electronically overlain on the GIS-base resource data compiled previously in Task 5 (Data Collection and Compilation), the Consultant will identify environmental impacts associated with each alternative.

A matrix will be prepared summarizing impacts of the Build alternatives and the No-Build alternative for each resource. Text will provide the explanation of the qualitative findings.

Task 9.4 Socio-Economic Impact Analysis

Potential implications of the alternatives on area business sales and employment, land use (commercial, industrial, residential by general type of each), tax ratable, and local population groups will be evaluated and summarized. Use of the performance criteria developed from the Phase I report will be considered in this section as well. This evaluation will include consideration of environmental justice, that is, the extent to which Build alternatives compared to No-Build alternatives may affect low income, elderly, minority, or other disadvantaged groups. Potential effects on neighborhood and community cohesion, social resources, community facilities, potentially displaced households and businesses, right-of-way costs (in 2010 dollars), and conformance to local comprehensive and economic development plans will be assessed and compared between alternatives using descriptive, graphic, and quantitative measures where possible. Baseline data developed in the Task 5 (Data Collection and Compilation) will be used for the assessment.

Economic criteria and evaluation measures will be used to compare alternatives. These would include:

- a) Quantifiable User Benefits & Costs, based on differences in VHT and VMT;
- b) Quantitative and qualitative effects of each alternative on development potential and municipal taxes, including additional sales capture potential and increased

Franklin Street Phase II Feasibility Study
Scope of Work
Revised Draft

effective reach to the regional labor force for existing businesses, as well as effective reach to the resident consumer and business markets that will affect development of vacant or underutilized properties;

- c) A positive or negative weighting of the economic evaluation measures based on whether and to what extent possible changes in land use conform to community goals and objectives for development;
- d) Positive and negative effects on businesses, jobs, and commercial development potential within the study area; and
- e) Possible changes (positive or negative) in business output, employment, income, and taxes to the regional economy, based on predicted changes in business productivity due to travel time savings and other factors. The analysis will be based on outputs from the traffic simulation models that show travel time along the corridor under No-Build and Build alternatives and annual VHT differences between the alternatives.

Task 9.5 Benefit and Cost Analysis

The Consultant will develop a benefits and costs matrix including both quantifiable and nonquantifiable benefits and costs.

The Consultant will use estimates of annual VHT and VMT for passenger vehicles and trucks to quantify user benefits under each alternative, and compare these to estimates of construction and maintenance costs to derive a user B/C ratio.

The proposed user benefit/cost comparison between alternatives will be for the design year. Annualized construction costs, developed in Task 9.2.6 (Preliminary Construction Cost Estimate), will be added to estimates of annual maintenance costs (engineering estimate in 2010 dollars) for comparison to annual transportation benefits in the design year.

Economic development benefits and costs, which are distinct from user benefits because they involve potential actual dollar flows in the local and regional economy, will be estimated for each strategy using the methods/models/tools described previously. The Consultant will weight the estimation of economic effects as positive or negative based on conformance to community goals and objectives. To the extent practicable given data available or newly developed for this study, the Consultant will quantify effects of improved access and travel time savings on business sales, employment, income, property taxes, and housing supply and value within the City of Portland, other discrete sub-areas such as those targeted for industrial or commercial development, each affected community overall, and the region.

Social benefits and costs will be assessed using physical alignment alternatives to estimate the number and type of households and businesses that would be displaced; traffic model output for specific roadway links to estimate the number and types of

Franklin Street Phase II Feasibility Study
Scope of Work
Revised Draft

households and businesses that may be affected by reduced or increased traffic; and secondary source data on the characteristics of potentially affected households and businesses to differentiate potential effects on sensitive households (elderly, low income, ethnic or racial minorities, single person and family households, and so forth).

Task 9.6 Document Alternative Evaluation and Identify Preferred Alternative

The Consultant will develop a Comparative Summary Analysis matrix of the alternatives concepts based on the evaluation criteria above and the ability to satisfy the vision statement identified in Phase I. The alternatives summary will be presented in a table format. The evaluation process should allow a full range of quantitative and qualitative evaluation measures to be used in combination, while avoiding the need to quantify measures that are best described qualitatively.

The Consultant will then develop a rating for each criterion according to the severity of the impacts. An example of a rating system would be a range from “Best” to “Worst” through 5 levels. The Consultant will rate the criteria based on the information contained in the Comparative Summary Analysis matrix. Using these ratings the Consultant will develop a Comparative Rating matrix of the alternatives to facilitate evaluation and screening by MaineDOT, City of Portland, PACTS, and the PAC.

MaineDOT, City of Portland, and PACTS will review and update the criteria and ratings based on feedback from the public participation process. In addition to the matrix, the advantages and disadvantages of all alternatives considered in determining the preferred alternative shall be discussed in text. The consultant will fully document the reasons for dismissing alternatives from further consideration.

Task 9.7 Preferred Alternative

MaineDOT, City of Portland, and PACTS and the PAC will use the Comparative Rating matrix and the Phase I vision of the study area to reach consensus on a Preferred Alternative. The Preferred Alternative will be further refined as described in Task 10 (Preferred Alternative Refinements).

Task 9.8 Deliverable

The Consultant will document the evaluation of the alternatives, potential impacts and the identification of a preferred alternative in Draft and Final Alternatives Analysis Technical Reports. This report will include conceptual drawings of the proposed alternatives and GIS-base maps showing the locations of potential impacts.

TASK 10 Preferred Alternative Refinements

Task 10.1 Geometric Refinements to Preferred Alternative

The preferred alternative will be refined in more detail, if possible, to further minimize impacts and costs while optimizing operational performance. The concept of the preferred alternative shall also include cross-sections, landscape / streetscape plans, and up to six (6) renderings. The renderings may include hand-drawn perspective sketches, 3D computer generated street cross sections, and/or computer photo enhancements. An

Franklin Street Phase II Feasibility Study

Scope of Work

Revised Draft

updated cost estimate will be prepared at this point broken down by major cost elements for preliminary design, right-of-way, construction, and construction engineering.

Task 10.2 Optimize Preferred Alternative Traffic Operations

The Consultant will prepare a multi-modal simulation presentation of only the Preferred Alternative. Work will include modifying the appropriate multi-modal simulation network from one of the Build Alternative(s) if there are proposed design changes. No MOE's will be reported for this model presentation.

Task 10.3 Deliverable

The Consultant will update geometric diagrams and cost estimates.

TASK 11 Implementation Plan

Task 11.1 Implementation Plan

The Consultant will assess the priority and appropriate phasing of plan elements based on input from MaineDOT, City of Portland, PACTS, and the PAC. The Consultant shall develop a multi-year, multi-phase plan for the preferred alternative(s) including cost estimates for each phase.

Task 11.2 Deliverable

Develop implementation plan (short-term and long-term) for the preferred alternative.

TASK 12 Documentation

The Consultant will prepare a draft and final report for MaineDOT, City of Portland, PACTS, Agencies, and other stakeholders as well as the general public, summarizing the findings and recommendations of this study.

Task 12.1 Draft Report

At the conclusion of each major study task, (Existing Conditions, Future Conditions, Alternatives Evaluation, and Implementation Plan) the Consultant will develop a draft report chapter for the eventual study report for review by MaineDOT, City of Portland, PACTS and the PAC. These chapters will summarize study results and will be presented in sufficient detail with graphics, photographs, charts and tables suitable for presentation. Fifty (50) hard copies and thirty five (35) electronic pdf copies will be provided to MaineDOT for distribution.

At a minimum the Draft Report will include the following major sections or chapters:

Executive Summary

- I. Introduction and Overview
- II. Existing Conditions
- III. Future Conditions
- IV. Alternative Development
- V. Alternative Evaluation and Selection
- VI. Implementation Plan

Franklin Street Phase II Feasibility Study
Scope of Work
Revised Draft

VII. Conclusions and Recommendations

Notes from meetings with MaineDOT, City of Portland, PACTS, the PAC, and public information meetings will be included as Appendices in the Report. However, as the study progresses, it is understood that this outline may be modified. Additionally, previously developed Technical Memoranda will be included as Appendices to the Report.

Task 12.2 Final Report

Based on one set of unified comments on the complete Draft Report from MaineDOT, City of Portland, PACTS, and the PAC, the Consultant will produce a Final Report. The report will be an 8.5" x 11" color document with 11" x 17" inserts as necessary in both hard copy and electronic copy. Fifty (50) hard copies and thirty five (35) electronic pdf copies on CD will be provided to MaineDOT for distribution. The Consultant will post these materials in downloadable formats on the study's web site.