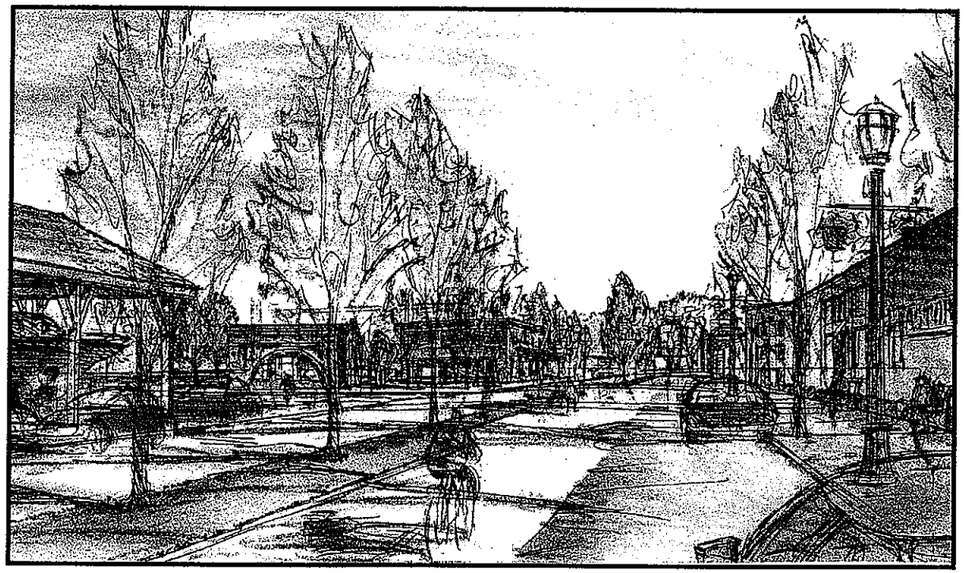
The Astoria Gateway Area
Transportation and Growth Management Plan

July 1999



City of Astoria, Oregon

Lennertz Coyle & Associates

David Evans & Associates

Mike Morgan, Planner

Pacific Rim Resources

Astoria
COMMUNITY DEVELOPMENT DEPARTMENT

Rosemary Johnson
PLANNER

1095 Duane Street
Astoria, Oregon 97103
(503) 338-5183
Fax (503) 338-6538
rjohnson@astoria.or.us

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Transportation and Growth Management Plan
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Acknowledgments

Project Steering Committee

Astoria Planning Commission members:
William Thomas, President
Margaret Blake
Donald Haskell
Mark Ludlow
Annie Oliver
Eric Paulson
Donald Schlock

Astoria Traffic Safety Committee members:
Nancy Turpen, Chairwoman
Phil Bales
Ernie Barrows
Joy Brewer
Roger Gilbert
Randy Stemper
Donald Webb

Astoria City Council:
Doug C. Thompson

Astoria TGM Cast

Paul Benoit, Community Development Director
Mike Caccavano, City Engineer
City of Astoria
1095 Duane Street
Astoria, OR 97103
Phone (503) 325-5821
Fax (503) 325-2017
E-Mail pbenoit@cityofastoria.com
mcaccavano@cityofastoria.com

Nancy Reynolds, Senior Transportation Planner
Oregon Department of Transportation, Region 2
455 Airport Road SE, Building B
Salem, OR 97301-5395
Phone (503) 986-2836
Fax (503) 986-2840
E-Mail nancy.j.reynolds@odot.sate.or.us

Larry Ksionzyk, Land Use/ Transporation Planner
Transportation & Growth Management,
Urban Division
1175 Court Street NE
Salem OR 97301
Phone (503) 378-8269
Fax (503) 378-2687
E-Mail larry.ksionzky@state.or.us

Project Consulting Team

Project Manager and Urban Design:
Steve Coyle, Lennertz Coyle & Associates
Lennertz Coyle & Associates
321 SW 4th Avenue, Suite 800
Portland, OR 97210
Phone (503) 228-9240
Fax (503) 228-2010
E-Mail scoyle@lcaarchitects.com

Transportation/Traffic Project Manager:
Jennifer Danziger, David Evans & Associates
David Evans & Associates
2828 SW Corbett Avenue
Portland, OR 97201
Phone (503) 223-6663
Fax (503) 223-2701
E-Mail jed@deainc.com

Transportation/Traffic Senior Engineer:
Dwayne Hofstetter, David Evans & Associates
David Evans & Associates
2828 SW Corbett Avenue
Portland, OR 97201
Phone (503) 223-6663
Fax (503) 223-2701
E-Mail maj@deainc.com

Resident Representative and Planner:
Mike Morgan, Planning
PO Box 132
Cannon Beach, OR 97110
Phone (503) 436-2574
Fax (503) 436-1061
E-Mail jlwomack@transport.com

Public Involvement & Facilitation:
Sumner Sharpe, FAICP
Pacific Rim Resources, Inc.
1220 SW Morrison Street, Suite 500
Portland. OR 97205
Phone (503) 241-7095
Fax (503) 241-7195
E-Mail ssharpe@prr-portland.com

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The comments of this document do not necessarily reflect the views or policies of the State of Oregon.

EXECUTIVE SUMMARY

The Astoria Transportation and Growth Management Plan has provided a unique opportunity for the City of Astoria and the State's Department of Transportation to collaborate on a new plan for a historic corridor, Highway 30 between 33rd and 16th Streets on Marine Drive, that functions both as an urban redevelopment area and major transportation route.

ISSUES

Astoria is one of the most historically significant coastal cities in the West and retains a high degree of visual consistency with its historic origins, despite the intrusions of post-war development and improvements. New travel routes and development opportunities are very limited in Astoria because of the geographical and topographical features and existing structures. Achieving consensus of public and private stakeholders requires a balance to maintain traffic flow while enhancing the urban environment in the Gateway area. The Plan needs to resolve the need to move vehicles at a reasonable speed, and facilitate pedestrians and cyclists crossing the busy thoroughfare.

Another key issue is balancing desired transportation assets (e.g. turn lanes) with business and pedestrian amenities (e.g. on-street parking) with right-of-way widths. An additional objective is designing new alternative vehicular, bike and pedestrian routes that will coordinate with the extension of the Riverwalk along the Columbia River to carry pedestrians, bikes and a trolley. A proposed new street on the north side of Marine Drive between 29th and 33rd Streets will provide an alternative route and facilitate traffic flow and redevelopment of the existing blocks.

RESEARCH

The research phase of the project commenced with a review of the City's nearly completed Transportation System Plan (TSP) and the adopted Astoria Gateway Master Plan that provided a framework for the transportation and land use components of the area and recommended improvements to make the riverfront area more business and pedestrian-friendly. Existing opportunities and constraints were explored. They include the corridor's steep topography and the effect of geological instability on potential new street routes. A set of goals and objectives provided a foundation to measure the Plan's effectiveness. A public involvement process included public meetings and open houses with a Steering Committee comprised of Planning Commission and Traffic Safety Committee members.

An extensive stakeholder research process included interviews with businesses along the Study Area, City Planning, Public Works, Fire and Police, local residents, Oregon Department of Transportation (ODOT) and Department of Land Conservation and Development (DLCD) representatives, and out-of-town companies that rely on Highway 30 to move goods and services. The stakeholder feedback emphasized the need to satisfy local and regional, transportation and business, and bike and pedestrian interests as a complex interdependent relationship.

Many stakeholders expressed the desire to create a 'sense of place' that would be safe, convenient, attractive and implementable. One respondent described the need to design a pleasant area that could also handle large amounts of traffic.

An analysis of the research data included projecting increased highway use from new development along Marine Drive including the Aquatics Centers, the Columbia River Maritime Museum expansion, the O.S.U. Seafood Lab, the National Seafood Consumer Center, the Mill Pond mixed use project, medical offices, a multiplex cinema, and the impact from other future redevelopment up and down the corridor. Because the Astoria Bypass is not a future alternative route in this Plan, evaluation of transportation options (including truck, car, transit and bike traffic) was limited to the Highway 30 corridor. The TSP and its computer model provided a critical source of criteria for the Plan.

DESIGN CONCEPT

After analyzing feedback from public and private stakeholders, an exploration of the area's physical conditions, the TSP and previous reports, plans and other data, Design Concepts were drafted by the Consultants. Examples included turn lanes at key intersections, new signals at 17th and 23rd Streets, and a roundabout option that connects 23rd Street, Exchange Street and Marine Drive. The Design Concepts were presented in December 1998 to the Steering Committee and at public meetings to describe technical and design opportunities and constraints, explain impacts of various design options, and solicit feedback on proposed solutions.

CONCEPT PLANS

After analyzing feedback from the December meeting, three Concept Plans were drafted with block-by-block street plans that incorporated the various Design Concepts into three iterations. Plan differences included maintaining vs. deleting bike lanes, traffic signals vs. roundabout options at 23rd Street and other concept combinations.

The three Concept Plans were presented to the City, ODOT and DLCD representatives, the Steering Committee and the general public in February 1999. Through a public consensus process, a preferred Concept Plan was selected by attendees, although ODOT required further technical review before judging the safety and design merits of the Plan.

PREFERRED CONCEPT PLAN

The Preferred Concept Plan's design retains Marine Drive's two-way, two-lane traffic pattern within the existing right of way, and adds two new streets on the north side of Marine Drive between 29th and 33rd Streets. In order to create a more pedestrian-friendly environment, the design includes wider sidewalks and a corresponding increase in street rights-of-way where and when feasible.

The Plan fits new turn lanes into the curb-to-curb width at key intersections, and retains on-street parking by sharing the existing bike lanes with the travel lanes. The Plan features a new signal either at 16th or 17th Street, curb extensions, three intersection options at Marine Drive and 33rd Street, and includes streetscape improvements such as street trees, improved lighting and wider sidewalks at potential rights-of-way expansions.

The refined Preferred Plan includes a realignment of 23rd Street and signalized intersection at Marine Drive and Exchange Street, and incorporates each selected design feature from 16th Street to 33rd Street on Marine Drive, plus minor changes to adjacent streets to facilitate the overall Plan.

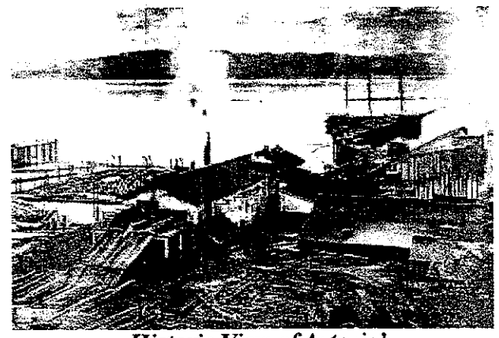
Implementing the Preferred Plan and meeting the design guidelines in the Oregon Highway Plan will result in some right-of-way requirements on Marine Drive. In most locations, the existing right-of-way width accommodates cross-sectional plan elements of shared travel lanes, turn lanes, and on-street parking to develop wider sidewalks. Right-of-way acquisition or property easements will be required to fit all the planned features. At areas constrained by existing buildings or by structural road supports between 16th and 17th Streets, future redevelopment may be needed to increase right-of-way.

The Preferred Plan includes an industrial/commercial area on the north side of Marine Drive between 29th and 33rd Streets, called the East Gateway. The Consultants met with City and business representatives from the area to consider the design of a new local street connection between 29th and 33rd Streets.

The proposed east-west street would help facilitate redevelopment of the East Gateway by (1) increasing vehicle and pedestrian access both into and through the area, and (2) creating smaller blocks that would be easier to subdivide and build out. To further the area's development potential, the Consultants proposed new land use zoning appropriate for a scenic, transitional riverfront site.

Proposed land uses in the East Gateway area include: Residential-Commercial Mixed Use (with emphasis on employment generators); neighborhood convenience retail along Marine Drive; recreational/commercial uses along the River; Planned Unit Developments; and uses for civic buildings and spaces. The City, the area's businesses and the public will need to determine how and when the East Gateway will redevelop. Adopting the proposed east-west street may be a first step.

The Preferred Concept Plan will require further refinement and engineering analysis to produce detailed designs and construction documents The concepts articulated in the Plan should provide the foundation for this effort.



Historic View of Astoria's Columbia Riverfront

Executive Summary

Approach and Methodology

APPROACH

The Consultants proposed a project approach that was reviewed, refined and approved by City staff, Oregon Department of Transportation (ODOT) and Department of Land Conservation and Development (DLCD) representatives. The approach consisted of a combination of research, technical studies, design concepts, regulatory and implementation strategies and public involvement.

The decision-making and planning process included primary stakeholder groups:

- The City of Astoria, represented by City Councilman Doug Thompson, the Community Development Department (Paul Benoit) and the Public Works Department (Mitch Mitchum and Mike Caccavano)
- ODOT, represented by TGM Grant Manager (Nancy Reynolds) and the Region 1 District Manager (Mo Dichari)
- DLCD, represented by Larry Ksionzyk
- A Project Steering Committee, composed of members of the City's Planning Commission and Traffic Safety Committee.
- The community-at-large, consisting of residents, businesses owners and concerned citizens, including a consultation with a local cycling group.

METHODOLOGY

The key steps in the methodology process were:

- Developing a schedule, milestones, and work products;
- Developing goals and objectives;
- Compiling base data;
- Stakeholder and public involvement;
- Developing concept plans;
- Developing the preferred plan;
- Writing the Gateway Plan

The Consultants began by drafting a 'Road Map' of the project that described the public participation milestones, overall project schedule and work products. A combined group of Consultants, City staff, ODOT and DLCD representatives identified primary and secondary Project goals and objectives (See Appendix A), and implementation strategies and tasks were proposed. They determined what base data was available and what areas required additional research. (See Appendix B.)

The group identified the general technical, economic, environmental and regulatory concerns and issues confronting the project. They proposed an appropriate public outreach strategy and process, and identified key project participants who required interviews to ensure that all critical viewpoints were represented.

Finally, the group refined the Road Map's public participation schedule, overall project schedule and the basic expectations of the work products.

The City staff developed a stakeholder or representative list of public agencies, landowners, civic groups and developers. The Mayor designated a Project Steering Committee that consisted of existing Planning Commission and Traffic Safety Committee members. The City provided the Consultants with base maps showing existing zoning, tax lots, topography, land use, vacant land, and development opportunity sites, and other related state, county and city public and private land use and transportation studies, plans and information.

Using the City's updated stakeholder list, the Consultants performed a preliminary stakeholder analysis to ensure that all the key people were involved and to determine the appropriate means to approach each participant. ODOT provided additional stakeholders within the organization, such as representatives for ODOT pedestrian and bicycle programs, and design and traffic expertise (see Appendix C).

The Consultants proposed a public involvement process (PIP) that included meetings with the Steering Committee and the general public; a feedback format for City, ODOT, DLCD and the general public; and an implementation plan that included task milestones, meetings and public presentation schedule, an overall project schedule, and expectations of the work products in the form of a Project Road Map. The City, ODOT and DLCD reviewed the proposed public involvement process and the Project Road Map. The Consultants revised the PIP and Road Map which was distributed to the Steering Committee and interested public, and the process was incorporated into the project.

BASE DATA GATHERING AND PRELIMINARY RESEARCH

City staff, with the consultants' assistance, provided a refined stakeholder list of those who were responsible for final decision-making, those capable of blocking or facilitating the decisions, stakeholders responsible for implementation, and those who expressed a need to monitor their general or specific interests, concerns and viewpoints. The stakeholders included hillside and downtown residents, businesses and property owners in the Gateway area, larger public entities such as the Columbia Memorial Hospital and the Columbia River Maritime Museum, and all the businesses and public users in the extended East Gateway area.

The Consultants interviewed the designated stakeholders to determine their needs, concerns and issues. This was done to provide a basis for achieving a consensus plan from the individuals and organizations. For example, retailers along Marine Drive generally needed to maintain or add on-street parking as a prerequisite for their business health. (See Appendix C.)

Families that lived on the south side of Marine Drive were concerned about the difficulty of crossing the highway safely and easily, and favored traffic signals that facilitated pedestrian crossing. ODOT, with public responsibility for the State Highway, required careful analysis of proposed signal locations to ensure each was integrated into a properly designed intersection and would not significantly degrade traffic flow or compromise safety.

Approach and Methodology

The selected plan of the three choices included signals at 17th and 23rd Street intersections, turn lanes, shared bike lanes, and maintaining and enhancing on-street parking. The shared bike lanes, a significant feature of the Preferred Plan, will be implemented only after the Riverwalk pedestrian and bicycle path is completed. Design options include an alternative configuration for the intersection of 33rd Street at Marine Drive. This combination of choices formed the Preferred Plan. The Consultants recorded and summarized feedback from the meetings and updated the Project Road Map and OBC to reflect the current progress.

PREFERRED PLAN

The Preferred Concept Plan and plan options were evaluated by ODOT in April 1999. Subsequent Plan refinements included traffic and transportation analysis to determine design feasibility, particularly the proposed signals and roundabout options. The Preferred Plan was further refined during two June 1999 design/review cycles with the City, ODOT, DLCD, the Steering Committee and general public.

The refined concept transportation plan includes drawings of selected draft alternatives in the form of vehicle, transit, bike and pedestrian plans, street sections, diagrams and sketches.

The Consultants, with the stakeholders help, rated the refined plans using the objective benchmark criteria. The OBC rating included a brief quantitative and qualitative analysis for the plan identifying the pros and cons of implementation. Finally, the Consultants prepared a list of questions and concerns from the meetings and subsequent contacts.

The Consultants presented the refined transportation alternative plans to ODOT representatives and participated in a site walk-through and meeting with ODOT, the City and DLCD. Each feature of the plan was reviewed and, with the exception of a few unresolved issues and options such as the round-about, the 33rd Street and Marine Drive intersection, some private accesses, and the results of a qualitative transportation analysis, the Preferred Plan was accepted by ODOT.

The Consultants further refined the Preferred Plan and the options using the feedback from the City/ ODOT/DLCD meeting. A quantitative transportation analysis that included intersection analysis and specific recommendations for roadways, bike and pedestrian facilities, transit-related facilities, and other modes of travel within the Gateway area was submitted to ODOT for further analysis. A more refined analysis will be necessary when detailed designs are developed.

The Consultants drafted a technical memo that described the results of quantitative transportation analysis; refined infrastructure and traffic impacts of each alternative; refined Transportation Planning Rule (TPR) impact analysis; preliminary budget and regulatory impacts; and refined phasing and growth plan option(s) for the Plan.

DRAFT REPORT

The Consultants prepared a draft of the Final Report that included a 100-scale Preferred Transportation Plan, and a detailed, quantitative transportation analysis.

The Consultants presented the Preferred Plan and other key components of the Draft Report to the City, ODOT, DLCD, representatives on the Steering Committee and the general public, and presented the documents in a second informal open house. The Plan included traffic, land use, economic, regulatory and technical elements required for implementation.

The Consultants reviewed the project's progress to date and recorded and summarized the feedback from the presentations. ODOT, DLCD and the City provided the Consultants with a written evaluation of the Preferred Plan and Draft Report components with recommendations to Consultants.

FINAL REPORT

The Consultants prepared a Final Report, the document in hand, using feedback from the City, ODOT, DLCD, the Steering Committee and general public. The Report was submitted to the City, ODOT and DLCD on June 30, 1999.

The Report, divided into a Plan section and Appendices, includes the Preferred Transportation Plan, and two 100-scale Preferred Plans that encompass the entire Gateway area. The first 100-scale plan limits the transportation improvements to the existing right-of-way along Marine Drive. The second 100-scale plan graphically describes the right-of-way impact on Marine Drive of accommodating all of the plan's desired features.

The Report includes a detailed, quantitative transportation analysis with travel demand modeling, intersection analysis, and specific recommendations for roadways, bike and pedestrian facilities, transit-related facilities, and other modes of travel within the Gateway area.

In addition, the Report describes a Transportation Planning Rule impact analysis, budget and potential funding sources, and timetable for implementation. Included are renderings of proposed streetscape improvements, OBC rating for the preferred plan, and recommendations for code and comprehensive plan amendments.

The Report and Preferred Plan will be reviewed by the City, ODOT and DLCD in detail. After making appropriate revisions or modifications to the Report and Plan, the City will submit the documents to City Council for adoption.

BACKGROUND INFORMATION

The research phase of the project yielded a wide spectrum of data that nevertheless resulted in a distinct and consistent cluster of key issues and concerns. These findings are generally the articulations of Astoria's City staff, businesses and citizens, and ODOT.

At the top of Astoria's list was the desire to keep the Gateway area, particularly along the Marine Drive corridor, a convenient, safe and attractive place that supports local business and enhances Astoria's sense of community and tradition. In short, the stretch of State Highway 30 should function like a real gateway to the oldest American city west of the Mississippi.

As a State highway under the jurisdiction of ODOT, Marine Drive is required to meet road standards for transportation and traffic safety, movement and capacity for cars, trucks and bicycles, while accommodating pedestrians in the process.

TRANSPORTATION GOALS AND LAND USE OBJECTIVES

The City staff, Steering Committee, ODOT and DLCD representatives, and the interested public agreed to a set of transportation and land use goals and objectives, outlined as follows:

Transportation Goals

Goal 1: Improve traffic circulation and safety throughout the city.
Goal 2: Identify roadway system needs to accommodate future population, economic and tourism growth.
Goal 3: Promote the increased use of alternative modes such as pedestrian, bus, trolley and bike.
Goal 4: Utilize access management measures to reduce traffic impacts on arterial and collector streets.
Goal 5: Identify improvements needed to address site-specific transportation issues.

Land Use Objectives

Objective 1: Enhance major existing land uses.
Objective 2: Promote new land uses.
Objective 3: Link land uses (visual and physical).
Objective 4: Create a pedestrian-friendly environment.
Objective 5: Develop implementation tools.
Objective 6: Build maintainable improvements.
Objective 7: Explore alternate design and technology solutions.
Objective 8: Provide attractive streetscapes and view corridors.
Objective 8: Promote use of the River Trail as the preferred local non-motorized travel route.

Note: Detailed Goals and Objectives are provided in Appendix A.

CONCERNS

Astoria's primary and secondary transportation, traffic and land use concerns can be summarized as follows:

Primary Concerns

Concern 1: Generally, business owners, home owners and other stakeholders desire lower vehicle speeds with easier and safer vehicle access on and off Marine Drive, plus better pedestrian crossings using traffic control devices or designs and turn lanes. They oppose a one-way couplet on Exchange/Marine Drive as previously recommended by David Evans & Associates and ODOT in the draft Astoria Transportation System Plan.
Concern 2: Maintenance of vehicle accessibility to industry, businesses, the hospital, the River and other destinations, including parking and freight access, within and through the Gateway is favored.
Concern 3: Vehicle, bike and pedestrian safety concerns relative to traffic speeds, limited visibility at some intersections and other conditions need to be addressed.
Concern 4: Increased pedestrian flow and accessibility in the area (in particular crossing Marine Drive) and access to the River is important.

Secondary Concerns

Concern 1: Land uses east of the Gateway area zoning only reflect the current uses, and should be changed to expand the vision of the Gateway area and to accommodate future markets.
Concern 2: On-street parking is especially important to businesses along Marine Drive and Exchange Street.
Concern 3: Continuous raised medians are a problem with local merchants along Marine Drive; turn lanes are favored.
Concern 4: Property owners may be adversely impacted by an expansion of the right-of-way.
Concern 5: Hillside has substantial slide history and environmental considerations, so roadway connections to and through the hills will be physically difficult (e.g. up 30th to Grand).
Concern 6: Dedicated bike lanes appear not to fit with other preferred right-of-way uses on Marine Drive such as on-street parking and turn lanes. The River Trail is the preferred bicycle route.
Concern 7: Difficult or dangerous access points include 33rd, 23rd and 16th at Marine Drive, particularly left turns from the side streets onto Marine Drive.

ODOT's Concerns

Concern 1: Safety is a critical issue, and the Preferred Plan must incorporate design elements which ensure that safety is not compromised.
Concern 2: The amount of traffic which will travel through the Gateway area needs to be accommodated by the Preferred Plan, or traffic delays can be anticipated.
Concern 3: Objectives for traffic flow (capacity and volume) should be established.
Concern 4: Pedestrian movements should be focused to specific or key locations that are less than about 50 feet from the desired crossing.
Concern 5: Heavy truck traffic impacts bicycles/pedestrians along Marine Drive.
Concern 6: Gateway Plan currently calls for bicycles on Marine Drive. Equal or better access needs to be provided for bicycles.
Concern 7: If auto-generated businesses are attracted to the area (e.g., cinema), an auto-oriented, not a pedestrian-oriented, environment is created.

Background Information

near future; other transit modes are financially risky. However, the Astoria Riverfront Trolley has been operating successfully for several months and is likely to provide valuable transit services on into the future.

19. **Rail Connections:** A great opportunity may exist for public/private rail transit to and from points east of Astoria. While passenger rail to the area is very costly, freight service has been recently restored.

20. **Pedestrian Paths:** The Gateway area currently has the potential for numerous new pedestrian paths that could run both east-west and north-south through the area. Some of the proposed paths are not continuous because of existing land development and the barrier of Marine Drive.

21. **Bicycle Lanes and Paths:** The area has great potential for additional bike facilities: shared lanes along Marine Drive, a bike route on Exchange Street, and a bicycle path along the River Trail. Functional bike and pedestrian crossings at busy intersections should be provided. Bicycle lanes currently exist along portions of Marine Drive.

22. **Landscaping:** There is potential for creating well-landscaped streetscapes with trees, planting strips, and other amenities. Existing development hinders the installation of street trees and planting strips in some areas, but redevelopment from 16th to 33rd on the North side of Marine Drive will offer opportunities for street trees.

23. **Parks:** Two new parks will be located in the Mill Pond development. Existing development and high development costs may restrict the creation of new city parks.

24. **Greenspaces:** Both the Riverwalk and the south hills provide natural buffers and wonderful views. Opportunities exist for park spaces along the Riverwalk.

25. **Civic Places:** Civic parks and buildings such as churches, community centers, museums or government offices might be sited near or in the Gateway. Currently, improved civic space is limited to the Aquatic Center and Maritime Museum located at the west end of the Gateway.

26. **Market Conditions:** Astoria continues to attract employment, housing and tourist-enhanced retail real estate development. The region's slow (1%) growth reflects a delicate and complex balance of forces.

27. **Retail:** The area continues to attract tourist-driven retail uses, and major investors such as the new cinema. The Gateway area may have too much existing retail development for the number of resident consumers. However, the increasing numbers of tourists visiting Astoria will continue to boost both destination and impulse retail opportunities.

28. **Entertainment:** There is an opportunity for 'Main Street' type entertainment in the area. The current development of the cinema should saturate the local movie market for the near future.

29. **Office:** The Wauna Credit Union building and "live-work" units should boost the employment market in the area. The Gateway area office market currently is very small.

30. **Industrial:** There may be opportunities to develop small 'research and development' or incubator business spaces on the north side of the Gateway. The current zoning prevents research and development-type businesses from developing in the Gateway area.

31. **Hospitality:** As the area becomes fully developed in the future, additional and specific types of hotels may be needed, such as a full-service facilities. Astoria currently contains two new motels.

32. **Day Care, Educational, K-12:** The influx of higher density housing may put some pressure on public schools to serve the growing population. The current zoning prevents K-12 schools from developing in the Gateway area.

33. **Educational/ Research:** The future development of a nationally recognized research campus, described in a Gateway Plan, could be promoted. This could be limited by the region's slow growth and limited buildable land area, particularly for larger campus-type development.

34. **Existing Single Family Homes:** Existing single family home owners may choose to either remain as owner/residents in the limited Gateway area south of Marine Drive, sell their homes for the underlying land value as areas redevelop, or redevelop their properties into higher density developments. With the exception of a few existing homes on the south side of Marine Drive, the area does not promote a significant amount of low density housing.

35. **Attached Homes/Lots:** Small lot detached housing and zero lot line townhouses may be appropriate in the area, or as transition housing from existing densities to higher density multi-family housing. The increasing land costs in the Gateway area will make low density housing less affordable, and tend to attract higher density housing. Higher density uses will increase traffic congestion.

36. **Apartments and Affordable Housing:** Garden apartments, courtyard apartments and other multifamily housing could be located in the undeveloped and re-developable Gateway area. The multi-family housing market may continue to suffer from the region's low absorption rate.

37. **Seniors/Retirement:** The increasing market for retirement communities may attract various types of retirement or assisted care uses. The retirement housing market is subject to the region's low absorption rate.

38. **Mixing Land Uses:** The Gateway area could be developed into horizontal and/or vertical mixed uses. The current Gateway zoning separates land uses into similar use-areas.

39. **Water Supply:** The existing water system should be adequate for development.

40. **Sewer:** The existing sewer system should be adequate for currently built, zoned and currently proposed development. However, the combined storm-sanitary system occasionally fails during severe rains.

41. **Storm Drainage:** The storm drainage system should be adequate for proposed development. The current combined storm-sanitary system fails during rainy periods.

42. **Zoning Regulations:** Current zoning accommodates a fairly wide range of use and density options. The current Gateway zoning separates land uses into similar use-areas. There is a need to revise zoning in the East Gateway area.

Background Information

Preferred Plan Description

PREFERRED PLAN

The three Concept Plans were first evaluated by the attendees at a series of meetings on February 17, 1999. These meetings resulted in the selection by general consensus of a preliminary Preferred Plan with several options identified for further study. Over the next several months, more detailed analyses were performed at several locations and several refinement options were presented at meetings. On June 17, 1999, the final Preferred Plan was identified by consensus with preferred improvements throughout the corridor.

General Features

There are several roadway improvements that have been shown throughout the Gateway corridor. A brief discussion of the advantages and disadvantages of these features is presented below.

In addition to these features, the Preferred Plan would include other streetscape features such as street trees, improved lighting, and the option for wider sidewalks where rights-of-way might be expanded in the future.

Left-Turn Lanes

Left-turn lanes can provide traffic safety benefits and add capacity to the roadway by separating the traffic turning left from the main flow of traffic. Vehicles turning left must often stop to wait for gaps in the opposing traffic. By providing a separate refuge area for them, through traffic can continue to move through the corridor.

The disadvantage of adding left-turn lanes is that the area of roadway dedicated to travel lanes must be wider. In some cases, on-street parking may be impacted to avoid widening the roadway.

Several different types of left-turn lanes are recommended in the corridor. A pocket lane may be added at discreet intersections. This is a relatively short lane with enough storage to accommodate queued vehicles and a taper back to the two-lane roadway configuration. Additional study will be required at some intersections to ensure adequate vehicle storage distance for left-turn movements.

A continuous two-way, left-turn lane has also been shown at some locations. Because it is continuous, this type of left-turn lane allows mid-block turning movements as well as movements specifically at intersections. It allows access to properties that have frontage on the highway and no other access options.

Median Dividers

A raised median divider controls access on roadways by limiting left-turn and U-turn movements to major intersections and driveways. It restricts all other streets and driveways to right-in/right-out movements only.

In addition to reducing the conflict points typical at most intersections, medians can be especially important in addressing very specific safety issues. Sometimes, driveways and streets are located so that head-on conflicts occur when vehicles making left turns are vying for the same left-turn refuge space. Sight distance restrictions that limit the visibility of vehicles stopped to make left turns is another concern. Limiting driveway access near busy intersections also improves safety.

Landscaping on raised median dividers has several benefits. It can improve the visual appearance of an area. It can also make the roadway appear narrower without actually having narrower travel lanes. If drivers perceive that a roadway is narrow, they become more conscious of speed and safety.

The main disadvantage of medians is that they can limit access to some businesses. This can have little affect on destination businesses that attract customers for a specific purpose (i.e. a furniture store) but it can affect businesses heavily dependent on drive-by traffic (i.e. a gas station). Another concern with medians is emergency vehicle access. Raised medians can have mountable curbs that enable emergency vehicles, such as police cars, ambulances, and fire trucks, to cross the barrier. If the median is landscaped, areas with mountable curbs can be provided at intervals to allow the median to be crossed.

On-Street Parking

On-street parking can be vital to businesses with no off-street parking facilities or businesses that are dependent on drop-in traffic.

If on-street parking is actively used, it can create a "Main Street" atmosphere that encourages slower travel speeds through an area. It is generally present in pedestrian-oriented environments where sidewalks are wider and businesses are located at the edge of the right-of-way.

On-street parking with a high turnover will impact on traffic flow. Parking maneuvers can slow traffic by forcing other vehicles to stop while the maneuver is completed.

Bicycle Facilities

The Preferred Plan moves the designated bicycle route to the Riverwalk bicycle/pedestrian path. This recreational trail may not be preferable to commuter bike traffic. Commuter bike traffic still using Marine Drive will have to share the roadway with cars and trucks and will have to be careful of car doors opening from the on-street parking. Removal of bike lanes from the State Highway will require an exception to the ODOT design guidelines. The value of bike lanes on Marine Drive includes improving traffic flow, safety, and turning - as well as buffering pedestrians. ODOT has voiced concerns about the removal of bike lanes from Marine Drive. However, the other plan elements are difficult to achieve without their removal.

Shared bikeways on Marine Drive will provide a wider outside lane to allow an average-sized vehicle to pass bicyclists without crossing over into the adjacent lane. Generally, this type of bikeway is only provided on an arterial roadway when pavement width is restricted and does not allow for bike lanes. While it conserves pavement width, this type of facility opens bicyclists up to conflicts with oversized vehicles and open car doors from parked vehicles.

Sidewalks

The design features of sidewalks are critical to creating an inviting pedestrian environment. Sidewalks are required on all arterials roadways in Oregon with a minimum width of 6 feet. However, to enhance the pedestrian environment, other features should be added as well.

Eight- to 12-foot wide sidewalks are more desirable for a number of reasons. They provide more space for street furniture or street trees and thereby help to maintain throughway wide enough to accommodate two pedestrians. They allow space for window shopping where they abut businesses. They also provide a greater buffer between pedestrians and the busy arterial roadway.

Another option is to provide a planter strip between the roadway and the sidewalk. A five-foot planter strip can buffer the sidewalk from the street and house street furniture. With a planter strip, a 6-foot sidewalk can accommodate pedestrian needs. In areas with little direct business access and/or no on-street parking, the planter strip option can be less expensive since it requires less concrete.

Curb Extensions

Curb extensions, also called bulbs or flares, can be installed at most intersections where on-street parking is present. These extensions essentially bring the end of the sidewalk out so that it is even with the end of the parking lane. They can be designed with various turning radii so that larger vehicles, such as trucks, can be accommodated.

Curb extensions generally improve pedestrian safety for several reasons. Shorter crossing distances mean that pedestrians are in the roadway for less time. Pedestrians are also more visible to traffic when they are standing on a curb extension than when they are on the side of a roadway where they can easily be blocked by parked cars.

Landscaping on curb extension also has several benefits. It can improve the visual appearance of an area. It can also make the roadway appear narrower which makes drivers more conscious of speed and safety. Landscaping extensions must be done carefully in order not to restrict the sight distance for vehicles and pedestrians, or hinder pedestrian visibility.

WEST SECTION – 16th to 20th Street

In general, the improvements to this section of roadway focus on adding capacity by providing left-turn lanes at critical intersections while maximizing on-street parking in the area. From a pedestrian viewpoint, improvements to facilitate crossing Marine Drive were also examined. The improvements are shown schematically in the Preferred Street Layout Plan – West Section.

Key Features

- Adds a traffic signal at 17th Street to be coordinated with other existing and future signals along Marine Drive, including 9th, 11th, 12th, 14th to the west and 23rd, 30th to the east. Traffic signal warrants must be met and approval of the State Traffic Engineer is required for signal installation.
- Maintains on-street parking on the north side of Marine between 16th and 17th Street and the south side of Marine from 16th to midway between 18th and 20th Streets.
- Adds curb extensions where on-street parking is maintained to improve pedestrian visibility and safety when crossing Marine Drive.
- Adds medians at several unsignalized intersections to improve pedestrian safety when crossing Marine Drive by reducing crossing distance and allowing pedestrians to cross only one direction of traffic at a time.
- Adds turn lanes at all intersections, where feasible, to separate left turns from the through traffic movement and increase capacity of the roadway.
- Replaces bike lanes with shared travel lanes on Marine Drive. The Riverwalk path would be signed to indicate an alternative bike route (this would require an exception from state policy).
- Includes transit existing transit stop at 20th Street and Exchange Street and recommended stops at 18th Street and Exchange Street and 18th Street and Marine Drive.

Preferred Plan West Section

Impacts

- Through traffic flow (including freight movements) would generally improve because separate left-turn lanes remove stopped vehicles waiting to turn from the through travel lane. Maintaining the on-street parking would have some negative effect on traffic flow but the on-street parking exists at these locations already.
- Speeds in the corridor may be slower because features such as on-street parking, curb extensions, and landscaped medians may change driver perceptions about the corridor. The traffic signal at 17th Street would also slow traffic in the corridor.
- Delays to through traffic on Marine Drive at 17th Street would increase because of the installation of a traffic signal; however, delays to vehicles turning to and from 17th Street would decrease because of the traffic signal.
- Accidents at the unsignalized intersections may be reduced by the addition of left-turn lanes; however, accidents at 17th Street and Marine Drive may increase because accident rates are generally higher at signalized intersections.
- Pedestrians would have shorter crossing distances on Marine Drive with the installation of curb extensions and medians. They would also benefit from the traffic signal at 17th Street. Wider sidewalks would also enhance the pedestrian environment.
- Bicyclists would benefit from the slightly slower traffic flow but shared travel lanes are generally less pleasant than the current bike lanes on the roadway.

Follow-Up Work

Although the Preferred Plan has been developed for this section of roadway, several issues will require follow-up work before projects can be implemented.

Marine Drive/17th Street Traffic Signal: A traffic signal was recommended for installation at the intersection of Marine Drive and 17th Street. An initial projection of traffic usage indicates that this intersection would have volumes that would be high enough to warrant a traffic signal some time in the next few years. Before installing a signal, a signal progression and queue storage analysis would need to be performed. The State Traffic Engineer would then need to review the data and approve the signal installation.

In about 15 years, the traffic signal at 17th Street may not meet the statewide highway mobility standards if the bypass is not built or if Marine Drive is not widened. The construction of a bypass would reduce traffic on Marine Drive and could result in a redesignation of this portion of Marine Drive to a district highway. In that case, with reduced traffic volumes and the change in mobility standards, the preferred plan for this section of Marine Drive would be adequate for more than 20 years.

Plans would also need to be developed to address how traffic would be routed up the hill to the Astoria Column and other destinations since 17th Street becomes too steep to accommodate large volumes of traffic south of Grand Avenue. Franklin Avenue may be the best location for routing traffic on 17th Street to 16th Street to finish ascending the hill.

Finally, the direction of traffic on Exchange and Duane Streets would need to be confirmed. The *Astoria Transportation System Plan* recommends returning to two-way traffic on these streets but there are several concerns about roadway width and safety which would need to be addressed prior to any changes.

Left-Turn Lanes and Wider Sidewalks: In order to maintain on-street parking on Marine Drive while adding left-turn lanes and wider sidewalks, the highway would need to be widened by 6 to 10 feet. This would require some additional right-of-way and could impact existing buildings on the block between 16th and 17th Street.

In order to provide a more pedestrian-friendly environment, sidewalks should be 10 feet wide to allow for street furniture, street trees, and a 6-foot wide pathway for pedestrians. Wider sidewalks would require some additional right-of-way and could impact existing buildings between 16th and 17th Street.

The City of Astoria has a grant to construct sidewalks on the north side of Marine Drive. Both future roadway width and sidewalk width should be determined prior to constructing these sidewalks.

Shared Bicycle Facilities: In order to add left-turn lanes at intersections, maintain parking at some locations, and minimize the width of the highway, the existing bike lanes on most of Marine Drive in the Gateway area would need to be replaced with shared bike lanes. This would require an exception to state policy and has raised some concerns with ODOT.

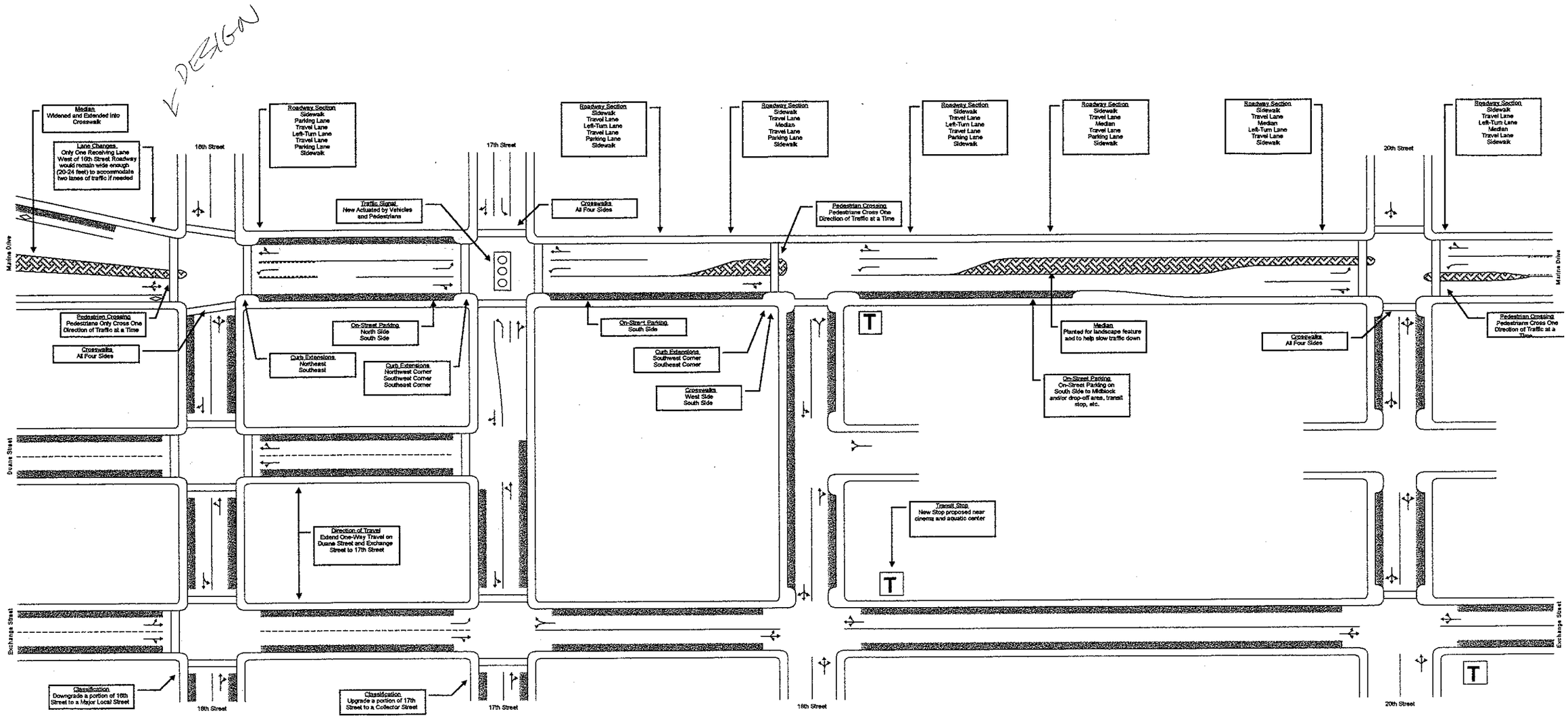
Before bicycle lanes are removed, adequate signage identifying the Riverwalk path must be in place. Connections between the Riverwalk path and Marine Drive should be encouraged to make the path a convenient alternative to an on-street route.

Estimated Project Costs

The improvements along this segment of roadway have been divided into several roadway projects. Brief project descriptions and total estimated costs for these projects are:

- Traffic Signal at 17th Street - $200,000.
- Roadway Widening and Resurfacing from 16th Street to 21st Street – $225,000 (includes construction cost for a 8-foot widening and new curbs on north side, but no cost for right-of-way acquisition)
- New Sidewalk Construction from 17th Street to Commercial Street North of Marine Drive - $240,000 (includes construction cost for a 10-foot sidewalk and a retaining wall between 17th and 20th at $150,000, but no cost for right-of-way acquisition)
- Existing Sidewalk Widening from 17th Street to 18th Street South of Marine Drive - $6,000 (includes construction cost for an additional 4 feet of sidewalk, but no right-of-way acquisition)
- Curb Extensions (total of seven) - $20,000
- Median Extension at 16th Street – $7,000
- Median Island at 18th Street – $4,500
- Median Islands at 20th Street - $30,000

Note: The roadway and pedestrian features in the Preferred Plan have been through preliminary checks for safety and efficiency. As specific projects enter the design stage, they will need further study to ensure that they function safely and efficiently.



Preferred Street Layout Plan

West Section
16th Street to 20th Street

LEGEND
- On-Street Parking
- Medians/Islands
- T — Transit Stop

SCHEMATIC DIAGRAM
NOT TO SCALE

REVISED 8/20/99
BASED ON COMMENTS
FROM STAFF/PUBLIC

MIDDLE SECTION - 21st to 27th Street

In general, the improvements to this section of roadway focus on improving traffic safety and operations by realigning and closuring some intersections. Pedestrian amenities were also included. The improvements are shown schematically in the Preferred Street Layout Plan – Middle Section.

Key Features

- Relocates the Commercial Street/Marine Drive intersection southeastward to form a "T" intersection with better visibility along the highway and a better turning radius for large trucks making left turns.
- Maintains some on-street parking on Commercial Street with some potential for adding off-street parking or building expansion in the old Commercial Street right-of-way.
- Realigns 23rd Street to a new connection with Marine Drive opposite Exchange Street creating a four-way intersection. The old 23rd Street connection to Marine Drive would be closed. Some minor realignment of Exchange Street may also be necessary to provide more queuing distance and better sight lines for the traffic signal.
- Adds a traffic signal controlling the expanded Marine/Exchange/23rd Street intersection.
- Adds turn lanes at all intersections, where feasible, to separate left turns from the through traffic movement and increase capacity of the roadway.
- Closes the Franklin Avenue access to Marine Drive and focuses traffic from adjacent parcels on 26th Street where sight distance and roadway alignment are better.
- Replaces bike lane with shared travel lanes on Marine Drive. The Riverwalk path would be signed to indicate an alternative bike route (this would require an exception to state policy).

Preferred Plan Middle Section

Impacts

- Through traffic flow (including freight movements) would generally improve because separate left-turn lanes remove stopped vehicles waiting to turn from the through travel lane.
- Speeds in the corridor would be slowed by the traffic signal at 23rd/Exchange Street.
- Delays to through traffic on Marine Drive at 23rd/Exchange Street would increase because of the installation of a traffic signal; however, delays to vehicles turning to and from 23rd and Exchange Streets would decrease because of the traffic signal.
- Accidents at the unsignalized intersections may be reduced by the addition of left-turn lanes. The relocation of Commercial Street to form a "T" intersection would improve safety at its intersection with Marine Drive.
- Pedestrians would benefit from the traffic signal at 23rd/Exchange Street. Wider sidewalks would also enhance the pedestrian environment.
- Bicyclists would benefit from the slightly slower traffic flow but shared travel lanes are generally less pleasant than the current bike lanes on the roadway.

Follow-Up Work

The Preferred Plan has been developed for this section of roadway but several issues will require follow-up work before projects can be implemented.

Commercial Street/Marine Drive Intersection: Best traffic engineering practices would realign Commercial Street to form a "T" intersection with Marine Drive for better visibility along the highway and channelized access to and from Commercial Street. However, the adjacent building supplier relies heavily on the on-street parking that would be eliminated by this roadway realignment.

Several specific improvement options were evaluated at this intersection. One set of options would provide off-street parking and an area for truck off-loading. Business owner concerns about these options include distance from parking to the entrance of the building, out-of-direction travel that could discourage customers, and adequate radii for truck movements. The location of access to any parking lot is a major concern of ODOT. Another option would allow for a building addition with direct frontage on Marine Drive. Concerns about this option would be the costs of building expansion, pedestrian activity across Marine Drive, and off-street parking access.

Since no resolution about exactly how to address both the business owner's and ODOT's concerns, the area has been shaded to indicate that further consideration of design options must occur before this project is implemented.

Realigning Commercial Street could also impact the existing freight business located between Commercial Street and Marine Drive. This improvement project would not be completed until this property was up for redevelopment or significant safety concerns arise that would warrant the immediate acquisition of the property.

Marine Drive/23rd Street/Exchange Street Traffic Signal and Improvements: A traffic signal was recommended for installation at the intersection formed by realigning 23rd Street and Exchange Street to form a single intersection with Marine Drive. An initial projection of traffic usage indicates that this improved intersection would have volumes that would be high enough to warrant a traffic signal some time in the next few years. Before installing a signal, a signal progression and queuing analysis would need to be performed. The State Traffic Engineer would then need to review the data and approve the signal installation

The proposed realignment of 23rd Street was recommended because it appears that it would have the least impact on the adjacent properties in the area. The Shell Station on the corner of 23rd Street would have some impacts due to the realignment. At a minimum, the pumps would need to be relocated further to the west. The building may also need to be relocated, depending on the exact alignment of 23rd Street.

The preferred option would also include a minor realignment of Exchange Street between 22nd Street and Marine Drive to increase left-turn storage distance and improve traffic signal visibility. This realignment would require the relocation of the existing retaining wall that currently supports the roadway on its south side.

Before plans for the improvements at the Marine Drive/23rd Street/Exchange Street intersection are finalized, additional evaluation of right-of-way impacts, design guidelines, and traffic engineering needs to be completed. Access issues will also need to be addressed.

Wider Sidewalks: In order to provide a more pedestrian-friendly environment, sidewalks should be 10 feet wide to allow for street furniture, street trees, and a 6-foot wide pathway for pedestrians. Wider sidewalks would require some additional right-of-way although most of the buildings along this section may be set back far enough to allow existing sidewalks to be widened.

Shared Bicycle Facilities: In order to add left-turn lanes at intersections, maintain parking at some locations, and minimize the width of the highway, the existing bike lanes on most of Marine Drive in the Gateway area would need to be replaced with shared bike lanes. This would require an exception to state policy and has raised some concerns with ODOT.

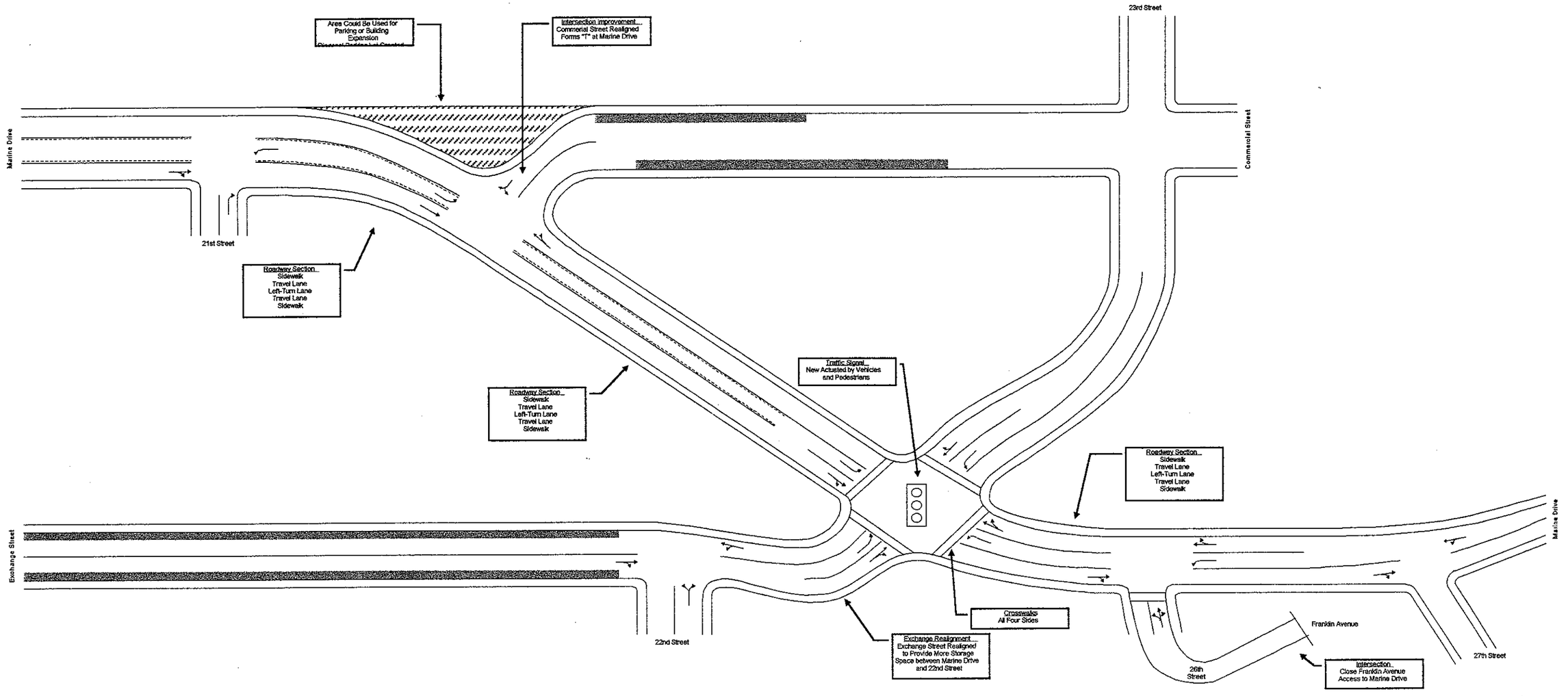
Before bicycle lanes are removed, adequate signage identifying the Riverwalk path must be in place. Connections between the Riverwalk path and Marine Drive should be encouraged to make the path a convenient alternative to an on-street route.

Estimated Project Costs

The improvements along this segment of roadway have been divided into several roadway projects. Brief project descriptions and total estimated costs for these projects are presented below.

- Sidewalk Widening from 21st Street to 27th Street – $31,000 (includes construction costs for an additional 4 feet of sidewalk, but no cost for right-of-way acquisition)
- Realignment of Commercial Street - $525,000 (includes construction costs and costs for right-of-way acquisition but does not include the cost of off-street parking improvements)
- Realignment of 23rd and Exchange Streets - $1,800,000 (includes the cost of a traffic signal, relocation of the Shell Station, and other right-of-way acquisition)

Note: The roadway and pedestrian features in the Preferred Plan have been through preliminary checks for safety and efficiency. As specific projects enter the design stage, they will need further study to ensure that they function safely and efficiently.



Preferred Street Layout Plan
Middle Section
21st Street to 27th Street

LEGEND
On-Street Parking
Medians/Islands

SCHEMATIC DIAGRAM
NOT TO SCALE

REVISED 8/20/99
BASED ON COMMENTS FROM STAFF/PUBLIC

EAST SECTION - 27th to 33rd Street

In general, the improvements to this section of roadway focus on adding capacity by providing left-turn lanes at critical intersections while maximizing on-street parking in the area. From a pedestrian viewpoint, improvements to facilitate crossing Marine Drive were also examined. The improvements are shown schematically in the Preferred Street Layout Plan – East Section.

Key Features

- Maintains on-street parking on Marine Drive from 27th to 32nd Street except on the north side between 29th and 33rd Street.
- Adds curb extensions where on-street parking is maintained to improve pedestrian visibility and safety when crossing Marine Drive.
- Creates mid-block curb extensions between 27th and 29th Street to increase visibility for pedestrians crossing Marine Drive from the Mill Site.
- Maintains the existing traffic signal at 30th Street.
- Adds left-turn lanes from the Marine Drive/30th Street intersection eastward through 33rd Street that increase capacity on Marine Drive.
- Realigns 32nd Street and Franklin Avenue to a single intersection to the east of the existing connections to improve capacity and sight distance for traffic coming down the hill.
- Closes the 33rd Street approach on the south side of Marine Drive and adjusts the 33rd Street approach on the north side of Marine Drive to form a "T" intersection.
- Replaces bike lane with shared travel lanes on Marine Drive. The Riverwalk path would be signed to indicate an alternative bike route (this would require an exception to state policy).

Preferred Plan East Section

Impacts

- Through traffic flow (including freight movements) would generally improve because separate left-turn lanes remove stopped vehicles waiting to turn from the through travel lane. Maintaining the on-street parking would have some negative effect on traffic flow but the on-street parking exists at these locations already and would be removed from some areas on the north side of Marine Drive.
- Speeds in the corridor may be slower because features such as on-street parking and curb extensions may change driver perceptions about the corridor. The existing traffic signal at 30th Street would continue to slow traffic in the corridor.
- Delays to through traffic on Marine Drive at 30th Street would remain unchanged since the traffic signal already exists.
- Accidents at the unsignalized intersections may be reduced by the addition of left-turn lanes.
- Pedestrians would have shorter crossing distances on Marine Drive with the installation of curb extensions. Wider sidewalks would also enhance the pedestrian environment.
- Bicyclists would benefit from the slightly slower traffic flow but shared travel lanes are generally less pleasant than the current bike lanes on the roadway.

Follow-Up Work

The Preferred Plan has been developed for this section of roadway but several issues will require follow-up work before projects can be implemented.

Left-Turn Lanes and On-Street Parking: On-street parking along this section of roadway, particularly on the south side, was identified as critical to the existing businesses in the area. In order to add left-turn lanes to the highway at 30th Street, and eventually the realigned 32nd Street intersection, on-street parking would need to be eliminated from at least one side of the roadway. To provide the full-width of travel lanes recommended in ODOT's design guidelines, widening the roadway or the removal of parking from both sides of the street could be necessary.

Widening the roadway is not feasible unless some of the adjacent properties are redeveloped and the existing buildings are removed. There is a historical fire station museum on the north side of the roadway that could preclude any widening in that direction. To maintain on-street parking without widening the roadway, travel lanes would need to be slightly narrower.

These issues will need to be resolved through discussions between ODOT, the City of Astoria, and adjacent business owners before restriping for turn lanes can occur.

Wider Sidewalks: In order to provide a more pedestrian-friendly environment, sidewalks should be 10 feet wide to allow for street furniture, street trees, and a 6-foot wide pathway for pedestrians. Wider sidewalks would require some additional right-of-way. Many of the buildings on the south side of the street front directly onto the sidewalk so there is little opportunity for widening sidewalks without redevelopment of this side of the street. On the north side, there are only a few building which abut the existing sidewalks; therefore, there may be more opportunity for widening sidewalks along this side of the roadway.

Shared Bicycle Facilities: In order to add left-turn lanes at intersections, maintain parking at some locations, and minimize the width of the highway, the existing bike lanes on most of Marine Drive in the Gateway area would need to be replaced with shared bike lanes. This would require an exception to state policy and has raised some concerns with ODOT.

Before bicycle lanes are removed, adequate signage identifying the Riverwalk path must be in place.

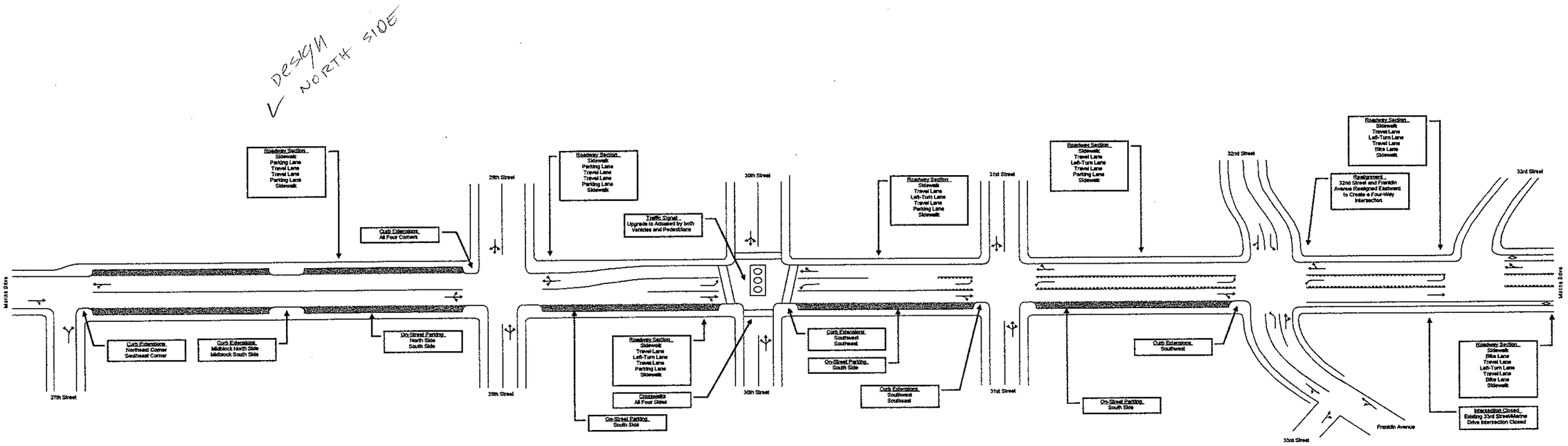
Connections between the Riverwalk path and Marine Drive should be encouraged to make the path a convenient alternative to an on-street route.

Estimated Project Costs

The improvements along this segment of roadway have been divided into several roadway projects. Brief project descriptions and total estimated costs for these projects are presented below.

- Realignment of 32nd Street and Franklin Avenue - $88,000 (includes right-of-way acquisition on north side of Marine Drive)
- Curb Extensions – $30,000
- Roadway Restriping to Provide Left-Turn Lanes and Traffic Signal Improvements at 30th Street - $10,000 (assumes no increase in pavement width)

Note: The roadway and pedestrian features in the preferred plan have been through preliminary checks for safety and efficiency. As specific projects enter the design stage, they will need further study to ensure that they function safely and efficiently.



Preferred Street Layout Plan
East Section
27th Street to 33rd Street

LEGEND
- On-Street Parking
- Medians/Islands

SCHEMATIC DIAGRAM
NOT TO SCALE

REVISED 8/20/99
BASED ON COMMENTS
FROM STAFF/PUBLIC

East Gateway Plan
The East Gateway section of Astoria lies along the north side of Marine between 29th and 33rd Streets. The area is currently a mixture of industrial and public facilities, including Police, Fire and Public Works.

The East Gateway's spectacular views, its convenience to the City's downtown, direct highway access and flat land with abundant acreage in a land-locked corridor, provide essential redevelopment potential.

The proposed plan includes transportation improvements that would provide an east-west traffic route parallel to Marine Drive between 29th and 33rd Streets. Besides facilitating a travel alternative to Marine Drive from 33rd Street to Commercial Street, the plan would permit better north-south access for all travel modes - transit, truck, car, bike and pedestrians - to the River and the Riverwalk park.

Key Features of the Plan

- A new east-west, mid-block street with a 50 ft. right-of-way and 28 to 30 ft. street width, would extend from 29th to 33rd Streets. It would provide access to the properties between Marine Drive and the Columbia River.
- A new, short stretch of east-west pavement, a 20 ft. wide, two-way lane, would run from the north end of 29th to 30th Street. The new lane would run directly along the south edge of the former railroad right-of-way, and function as its sidewalk.
- A new one-way, west-bound, 12 ft. wide lane would run along the south edge of the Riverwalk from 30th to 33rd Streets, and connect to the 20 ft. lane described above. The City currently owns a 50 ft. wide strip of land centered on the existing railroad tracks. This right-of-way should enable the narrow lane or alley to be built.

The proposed mid-block, east-west street alignment would extend from 29th Street between the Van Dusen and Van Horn properties to the west, bisect the City Public Works yard and Brugh properties to the east, and continue on to 33rd Street. It would provide an alternative route along Marine Drive for a distance of over ten blocks, from City Lumber on the west end to Hauke's market on the east.

The mid-block street and narrow lane along the Riverwalk would allow continuous traffic to circulate through the East Gateway instead of terminating at the existing dead-ends at 30th, 31st and 32nd Streets. The river-side lane would afford direct and continuous "all-weather" views of the River from vehicles.

The Mill Pond Development's future phases will include a new street from 23rd to 29th Street, and will connect directly to both the new mid-block street and narrow lane. These connections will help disperse traffic on the north side of Marine Drive and support the East Gateway's development potential by circulating activity though these long, deep blocks.

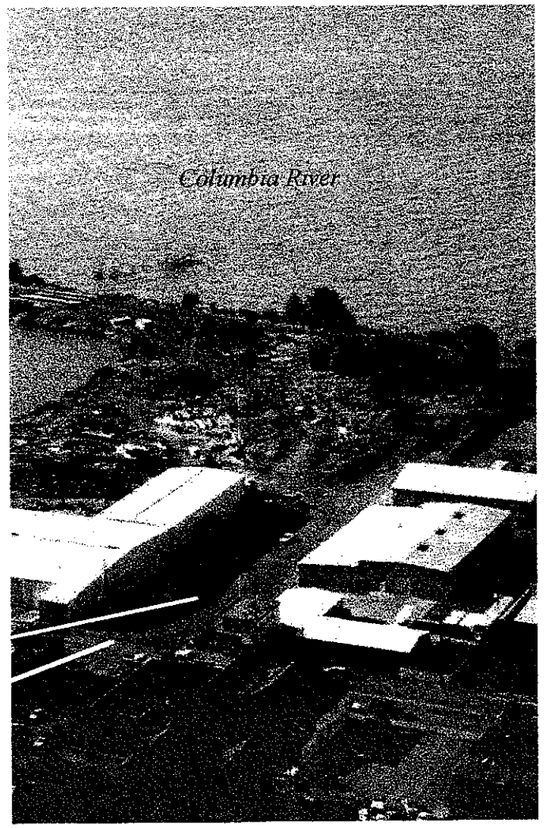
Key Benefits
The East Gateway is a hidden asset that good planning, economic stability and time will nurture. Carefully exploiting the site's potential will yield important benefits to the City:

- Quality redevelopment in the East Gateway will protect and enhance Astoria's "sense of place", its number one asset that consists of its natural beauty, clean air, recreational opportunities and cultural/historic charm.
- Astoria will attract new businesses and residents to the extent that East Gateway developable sites are readily available, and are generally perceived as desirable and economically viable locations.
- The East Gateway plan could create a model for business relocation and start-up. The key components are attractiveness (physical, cultural, recreational, image), convenience (transportation, communications), safety (personal and business) and affordability (development and operational costs).

Recommendations
As a first step, the City could draft a redevelopment plan for the East Gateway that would begin to address the physical, economic, regulatory and design opportunities, constraints and conditions. The City's adopted plan for the Gateway in general and the Mill Pond site in particular could provide time-tested guidelines for this effort.

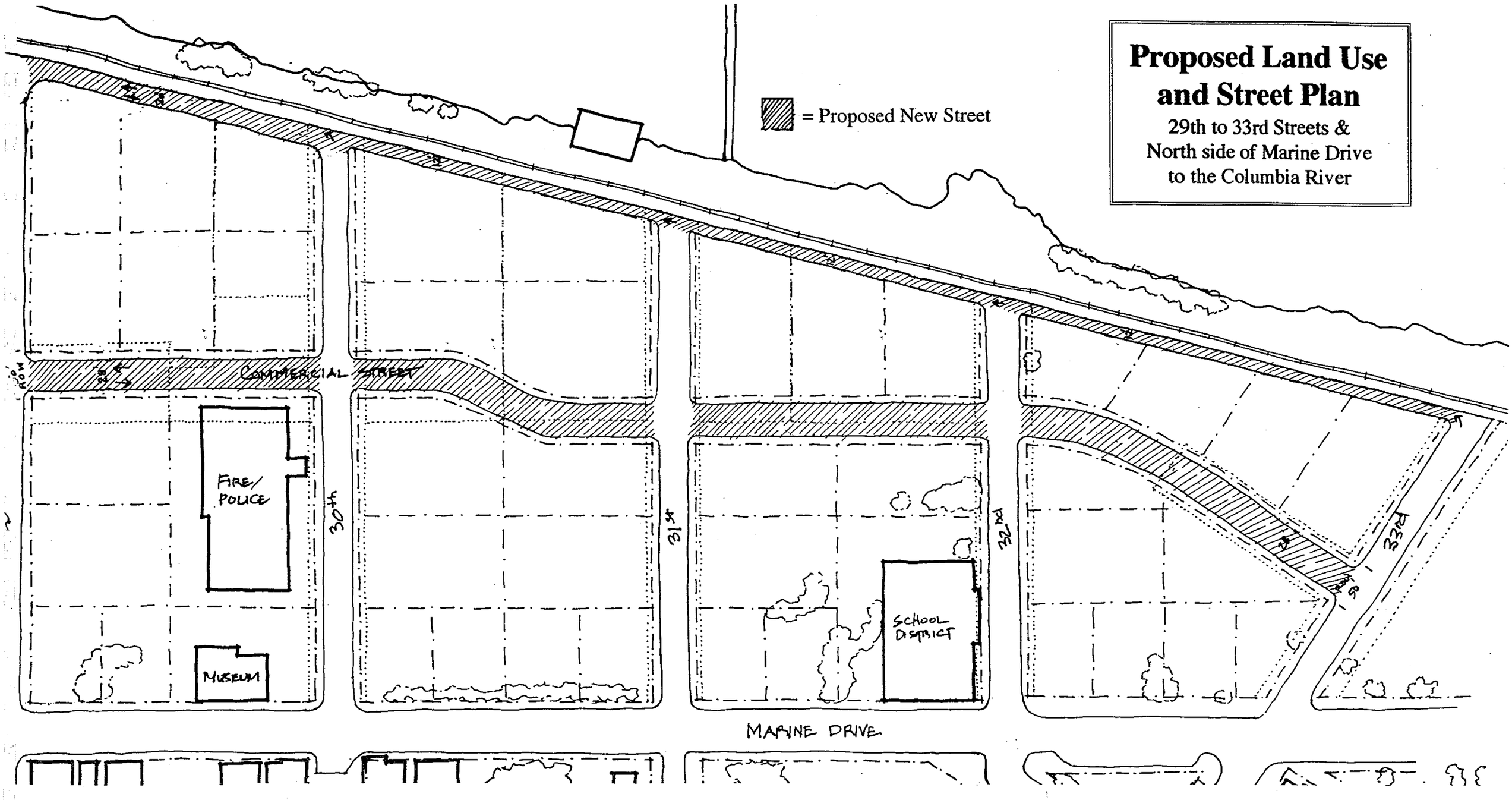
Secondly, the City should provide direct and indirect economic and regulatory incentives to assist developers who agree to act as "pioneers" in the East Gateway. The City has a track record in attracting qualified business owners and investors. Using it's inovative resources, the City could help build a "critical mass" of private and/or public facilities.

The recommended new street and land use/lot plan in the East Gateway, shown on the opposite leaf, will provide a beginning for the redevelopment effort. Refer to Section G-3 in the Appendix for additional information.



View north over the west end of the East Gateway.

East Gateway



East Gateway

Project Implementation

Project Implementation

The project implementation plan takes into consideration available funding, City priorities, and need based on traffic projections. The following schedule indicates priorities and may be modified to reflect the availability of funding or adjacent development projects.

Phase 1 – 2000 to 2004

- New Sidewalk Construction from 17th Street to Commercial Street North of Marine Drive - $240,000
- Realignment and signalization of 23rd and Exchange Streets - $1,800,000
- Roadway Restriping to Provide Left-Turn Lanes and Traffic Signal Improvements at 30th Street - $10,000

Total: $2,050,000

Phase 2 – 2005 to 2009

- Roadway Widening and Resurfacing from 16th Street to 21st Street – $225,000
- Traffic Signal at 17th Street - $200,000.
- Existing Sidewalk Widening from 17th Street to 18th Street South of Marine Drive - $6,000 (includes an additional 4 feet of sidewalk but no right-of-way acquisition)
- Curb Extensions from 16th to 18th Street- $20,000
- Median Extension at 16th Street – $7,000
- Median Island at 18th Street – $4,500
- Median Islands at 20th Street - $30,000
- Sidewalk Widening from 21st Street to 27th Street – $31,000 (includes an additional 4 feet of sidewalk but no right-of-way acquisition)
- Realignment of 32nd Street and Franklin Avenue - $88,000 (includes right-of-way acquisition on north side of Marine Drive)
- Curb Extensions from 27th to 32nd Street– $30,000

Total: $641,500

Phase 3 – 2010 to 2019

- Realignment of Commercial Street - $525,000 (includes right-of-way acquisition but does not include the cost of off-street parking improvements)

Total: $525,000

Potential Funding Sources

Transportation improvements in Astoria can be funded by the private sector, the City of Astoria, Clatsop County, or state and federal funds administered by ODOT.

Summary of Existing Funding for Improvement Projects

Existing funding sources in Astoria for transportation improvement projects are primarily:

- *Surface Transportation Program* (STP) funds
- *Local Improvement District* (LID) funding from special assessments on property
- ODOT's *Statewide Transportation Improvement Program* (STIP)
- *State Highway Fund* set-aside for footpaths and bicycle trails
- *Grants* distributed by ODOT and from other sources

Developer-Provided Improvements

The city's Development Code (13.610) requires private developers to provide improved streets, sidewalks, railroad crossings, street lighting, and street name signs within and adjacent to subdivided or partitioned land. These improvements must be constructed to city standards.

City Roadway Funding

Revenue from the State Tax (Fuel and Registration) Street Fund is transferred to the Public Works Fund; this revenue supports expenditures for maintenance and preservation of the roadway system. The Astoria Road District Fund obtains revenue from property tax levies dedicated to road improvements. This requires voter approval for the road levy. Special assessments can also be levied on property to fund improvements that benefit the assessed property. The city's Municipal Code (2.125–2.240) establishes the procedure by which the City Council can levy special assessments on property to fund local improvements.

County Funding

Clatsop County does not make regular contributions of funding for transportation projects in the City of Astoria. The county has contributed funds in the past for transportation improvements in the city, which indicates there is potential for future county funding on transportation projects in Astoria. The county's current policy is to make decisions on contributing to projects in the city on a case-by-case basis, without specific criteria.

State Roadway Funding

ODOT allocates funding to transportation projects through the Statewide Transportation Improvement Program (STIP), which lists projects that will be constructed over a four-year period. The STIP is updated every two years, when ODOT asks local jurisdictions for their priorities for transportation project funding. Projects included in the draft STIP are those that have been given the highest priority in various local and regional planning processes. Following public comment on the draft STIP, a final STIP is prepared. Project costs included in the final STIP may not exceed available funding. Federally funded (TEA-21) projects are included in the state STIP.

Funding for Non-Motorized Improvements

Funding for non-motorized improvements in Astoria is primarily from federal and state funding that is specifically set aside for pedestrian and bicycle improvements. At the federal level, TEA 21 requires a percentage of Surface Transportation Program (STP) funds allocated to states to be set aside for transportation enhancement projects, which include pedestrian and bicycle improvements, along with projects that enhance the visual and historic aspects of roadways. ODOT distributes this set-aside funding through the STIP and the Oregon Bicycle and Pedestrian Program.

Sources of Additional Local Funding

New fees or taxes (such as tolls, vehicle registration fees, street utility fees, and fuel taxes) could be based on use of the transportation system, while others (such as property taxes) would charge residents regardless of their use of the transportation system.

There are a variety of revenue sources used by local jurisdictions in Oregon that could be implemented by the City of Astoria to fund improvements on a pay-as-you-go or debt financing basis. These funding sources include local gas taxes, street utility fees and property tax serial levies.

Preferred Plan and the Right-of-Way Constraints

(refer to graphic Preferred Plan Using Existing Right-of-Way and Preferred Plan Using Expanded Right-of-Way)

The Preferred Plan consists of two versions:

- The Preferred Plan that fits into the existing right-of-way on Marine Drive.
- Preferred Plan using an expanded right-of-way on Marine Drive.

In order to accommodate the Plan designs which fully meet ODOT standards, the existing roadway on Marine Drive would need to be widened by 8 or more feet. The right-of-way constraints consist of:

- Private unimproved and/or unoccupied property (e.g., property on south side of Marine Drive just west of Franklin intersection).
- Private property that is in the planning or permitting process (e.g., Mill Pond and Maritime Museum).
- Existing buildings, some of which are new (e.g., Aquatic Center) or historic (e.g., Fire Museum), others (e.g., North Coast Auto) that may be redeveloped over time to allow greater setback.
- Structural conditions between 16th and 17th Streets along Marine Drive consists of existing "chair walls" or roadway supports that elevate the road above the lower grades on either side.

Right-of-Way Increases

Increasing the right-of-way along Marine Drive will be needed in some locations to meet ODOT design guidelines.

- Accommodating a new turn lane: For example, the roadway section along Marine Drive at 30th Street may or may not accommodate the on-street parking, turn lane and two travel lanes proposed on the Preferred Plan. This condition will have to be determined through a boundary survey that will exactly describe how much right-of-way width actually exists. A new turn lane may also be accommodated by varying from ODOT's design guidelines.

- Accommodating wider sidewalks: The right-of-way constraints in locations such as between 17th and 20th Streets along Marine Drive consists of existing buildings to the south, and Maritime Museum property on the north side. In order to provide a sidewalk, wider travel lanes and on-street parking on the south side, it is necessary to either create a sidewalk easement on the edge of the Museum's south boundary, or acquire right-of-way from the museum. In either case, the sidewalk construction will require mitigation of the topography that slopes downhill from the road.

- In order to increase sidewalk widths between 16th and 17th Streets along Marine Drive, the existing concrete "chair walls" or roadway supports that elevate the road above the lower grades on either side would need to be filled and graded. This would be a significant cost that is not reflected in the previous cost estimates.

Right-of-Way Width Increase Recommendations

It is important that any consideration to increase street rights-of-way widths to accommodate street and sidewalk improvments and address ODOT's desigh guidelines be balanced with the City's concerns over livability and preserving the City's historic character.

For example, widening the Marine Drive right-of-way between 29th and 32th Streets to provide wider sidewalks and turn lanes would require the removal of several storefronts that have some economic and cultural value in the community. The traffic, transportation and pedestrian benefits would have to be weighed against the impact of demolishing retail buildings and businesses that line Marine Drive and provide a "main street" character to this stretch of highway.

The most appropriate time and circumstance to consider a right-of-way increase that impacts existing buildings is during a public or private redevelopment effort. In this situation, the street and sidewalk improvements and expanded right-of-way can be incorporated into the larger development process.

It is recommended that, when improvements are considered, the appropriate public agency should survey Marine Drive rights-of-way and adjust for legal, cost, design and construction impacts. Concurrently, the economic, cultural and other community issues should be evaluated. The final decision should reflect a balance between these key forces.

Preferred Plan Street Re-Alignments and Right-of-Way Acquisition

(refer to 100-scale Preferred Plans)

The Preferred Plan consists of two major street re-alignments:

- The major realignment of 23rd and Exchange Streets.
- The major realignment of Franklin and 32nd.

In order to accommodate the desired Plan design at these two locations:

- 23rd and Exchange Streets: Private improved properties will have to be acquired and existing buildings modified or removed to accommodate the proposed alignment.
- Franklin and 32nd Streets: Private unimproved and improved properties will have to be acquired to accommodate the proposed alignment. Most of the land required is public.

The Preferred Plan includes a proposed east-west street, an extension of Mill Pond Lane and an alley along the railroad right-ofway. These alignments would require right-of-way acquisition within the East Gateway area north of Marine Drive, between 29th and 33rd Streets, including:

- Private improved properties that will have to be acquired and existing buildings modified or removed to accommodate the proposed alignment.
- Public improved properties belonging to the Public Works, Police and Fire Departments that will have to be dedicated and existing buildings modified or removed to accommodate the proposed alignment.

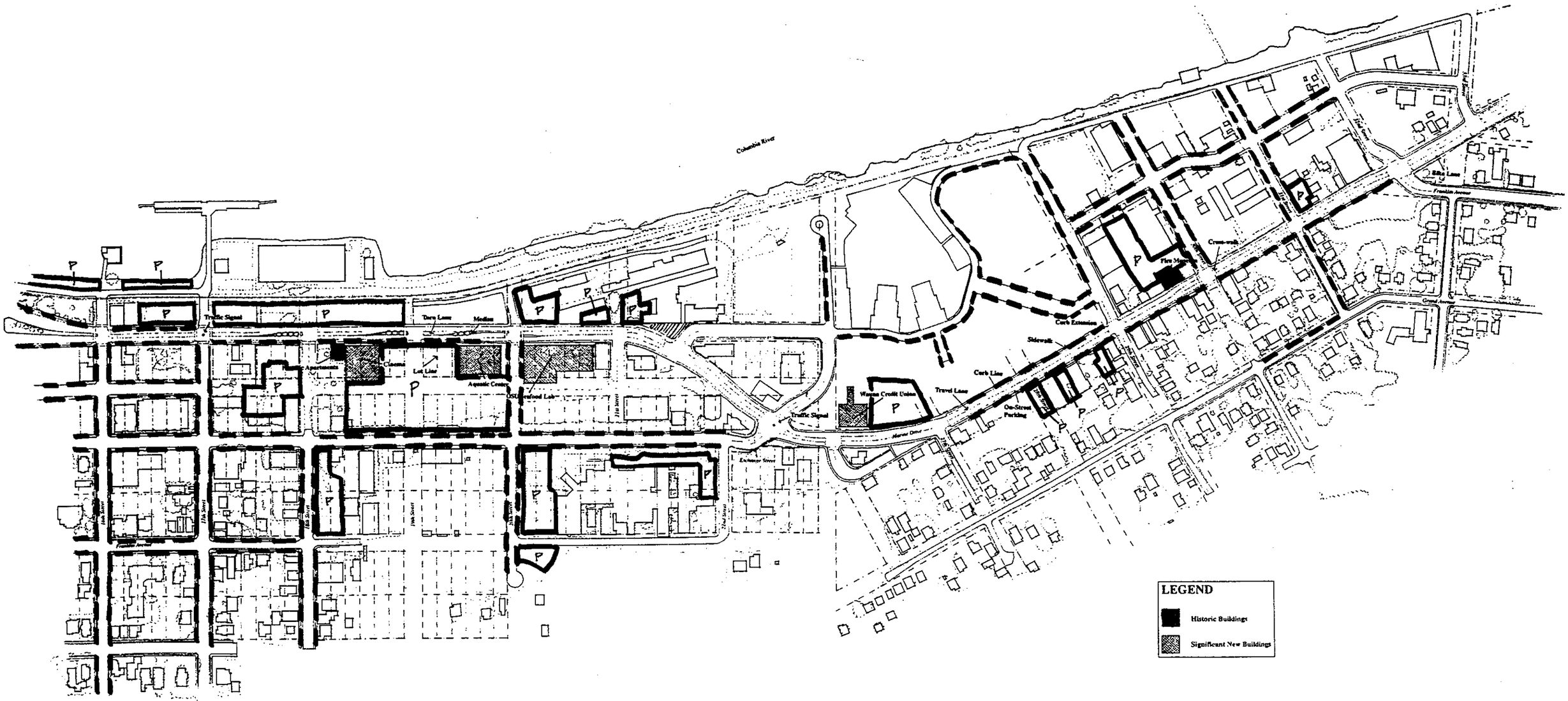
Right-of-Way Street Re-Alignment Recommendations

23rd and Exchange Streets: It is recommended that the City acquire the existing vacant County property site on the west side of 23rd Street in order to accommodate future 23rd Street re-alignment.

Franklin and 32nd Street: There are no special recommendations.

General Recommendations: When street re-alignments are considered, the appropriate public agency should survey the proposed rights-of-way for legal, cost, design and construction impacts, as well as economic, cultural and other community issues. Thenew street alignments and acquisition/dedication process should reflect a balance between these key elements.

Additional Recommendations



Parking

Astoria Transportation & Growth Management Plan

Legend

On Street Parking

Parking Lots

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July 1999

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David Evans & Associates
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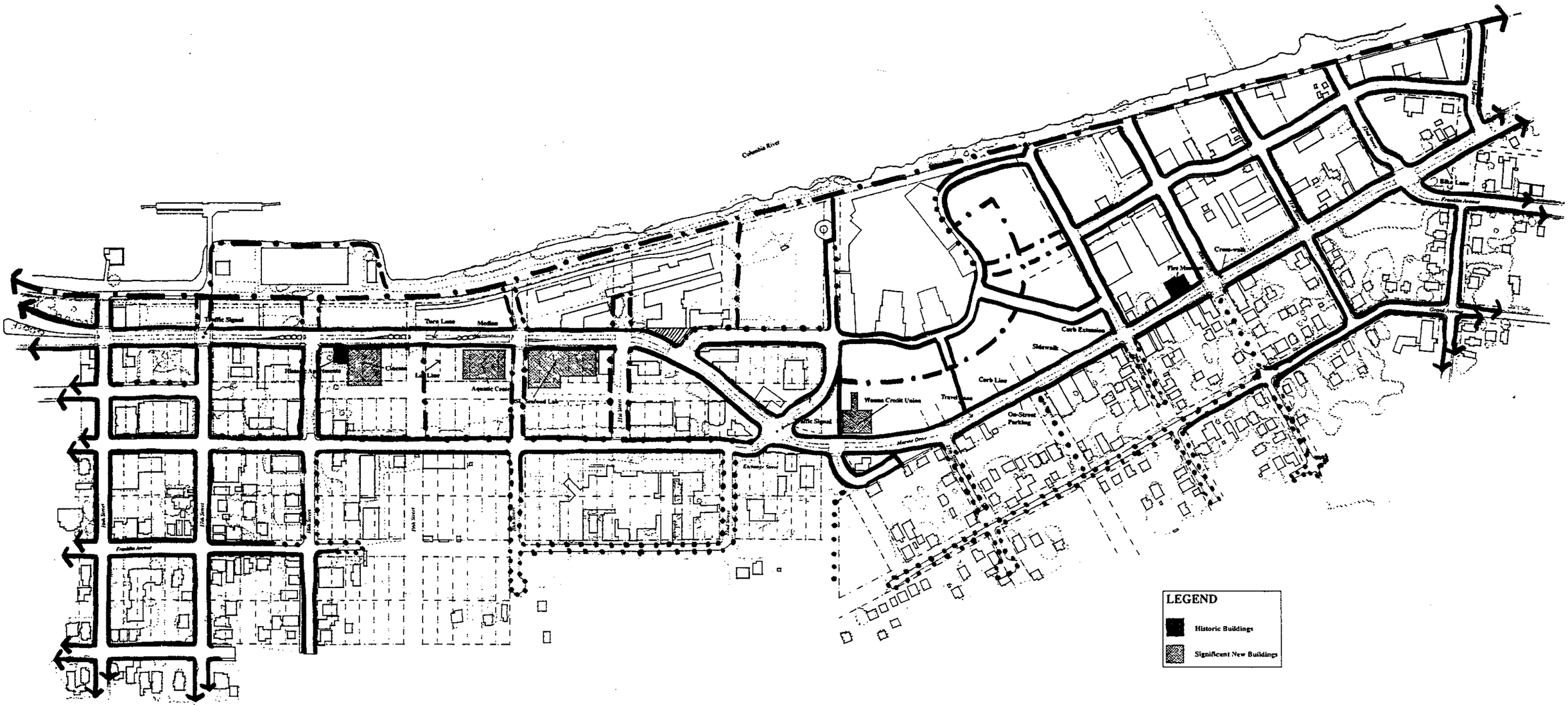
Mike Morgan, Planning
Public Involvement
Pacific Rim Resources, Inc.



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Pedestrian Ways

Astoria Transportation & Growth Management Plan

Legend

- Improved Pedestrian Ways
- Proposed Pedestrian Ways
- Unimproved Pedestrian Ways

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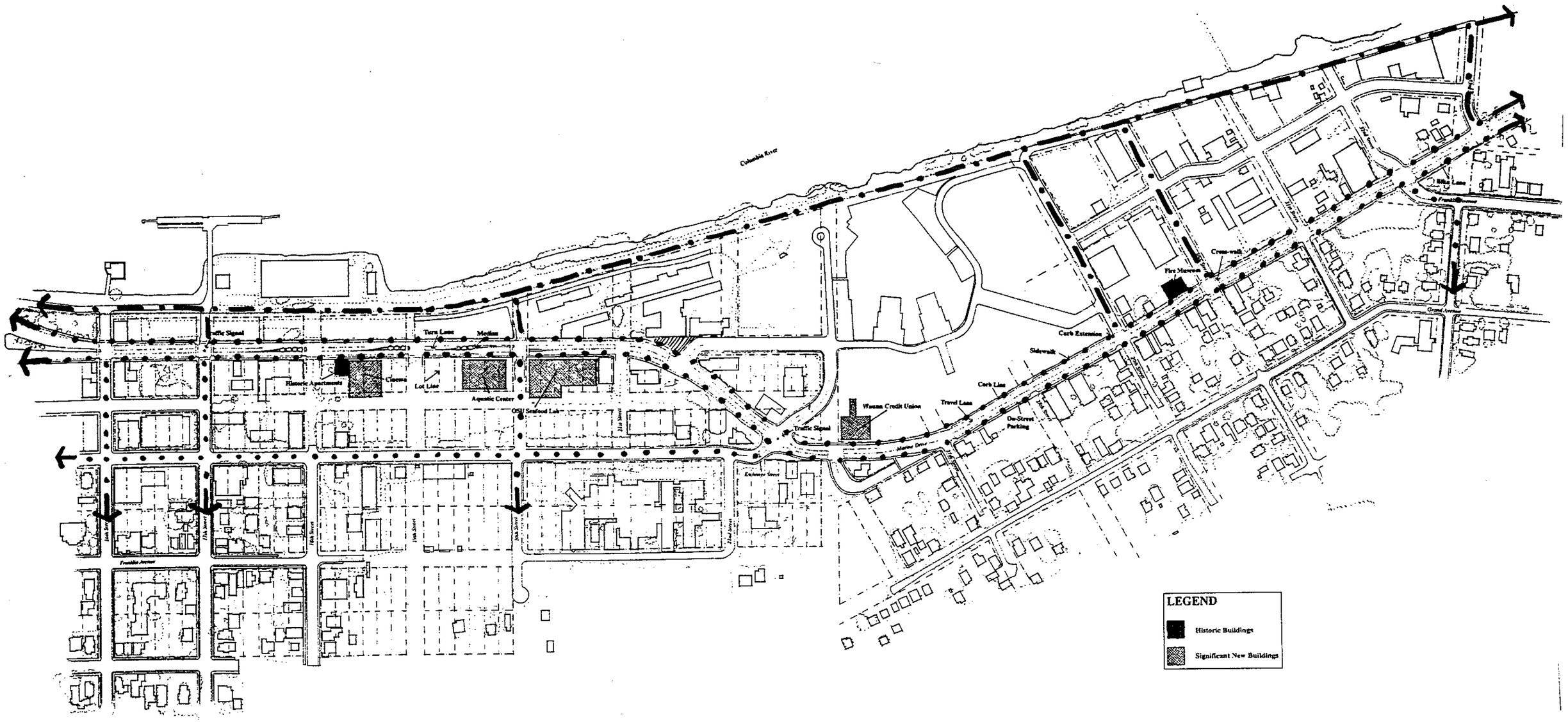

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Potential Bike Lanes

Astoria Transportation & Growth Management Plan

Legend

Proposed Bike Paths

Proposed Bike/ Shared Lanes

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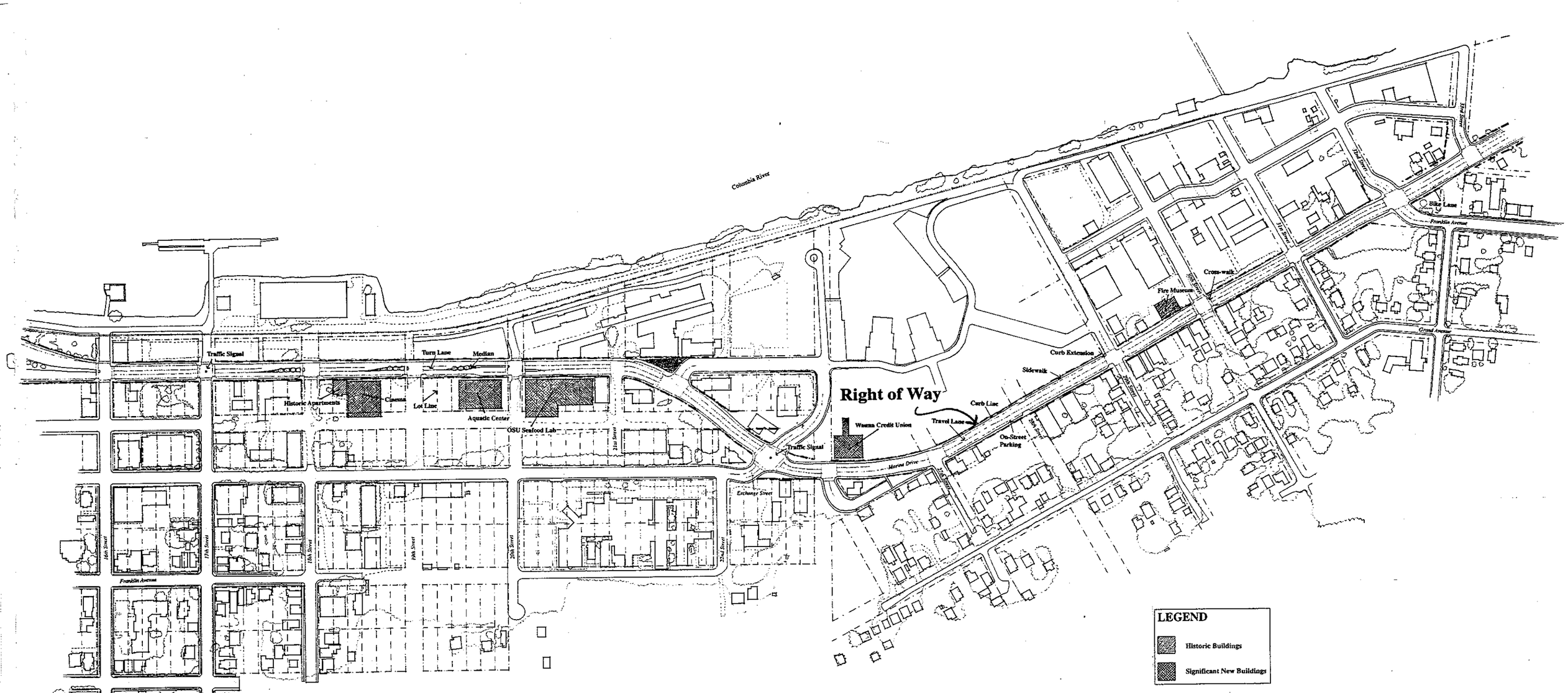

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Preferred Plan

Using Existing Right of Way (R.O.W.)

Astoria Transportation & Growth Management Plan

Refer to full size drawings 1" : 100'

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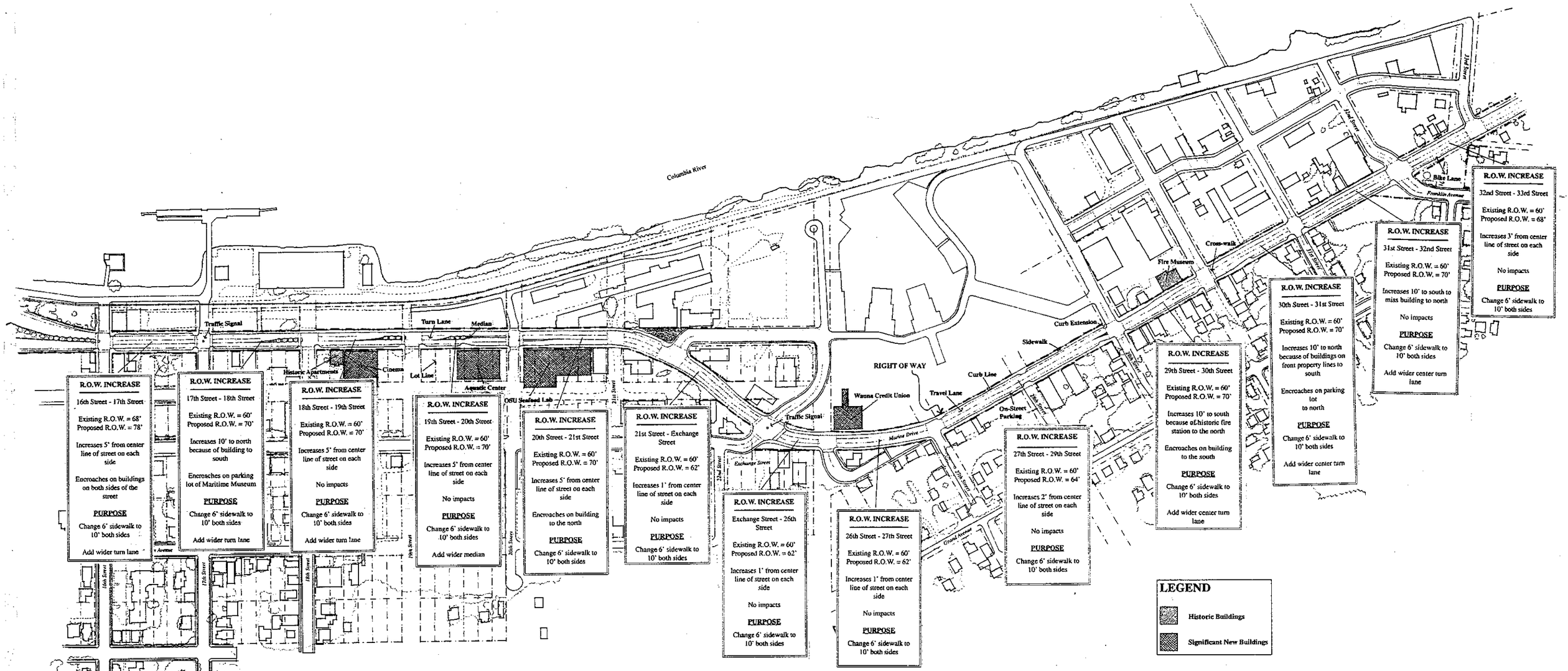

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Preferred Plan

Using Expanded Right of Way (R.O.W.)

Astoria Transportation & Growth Management Plan

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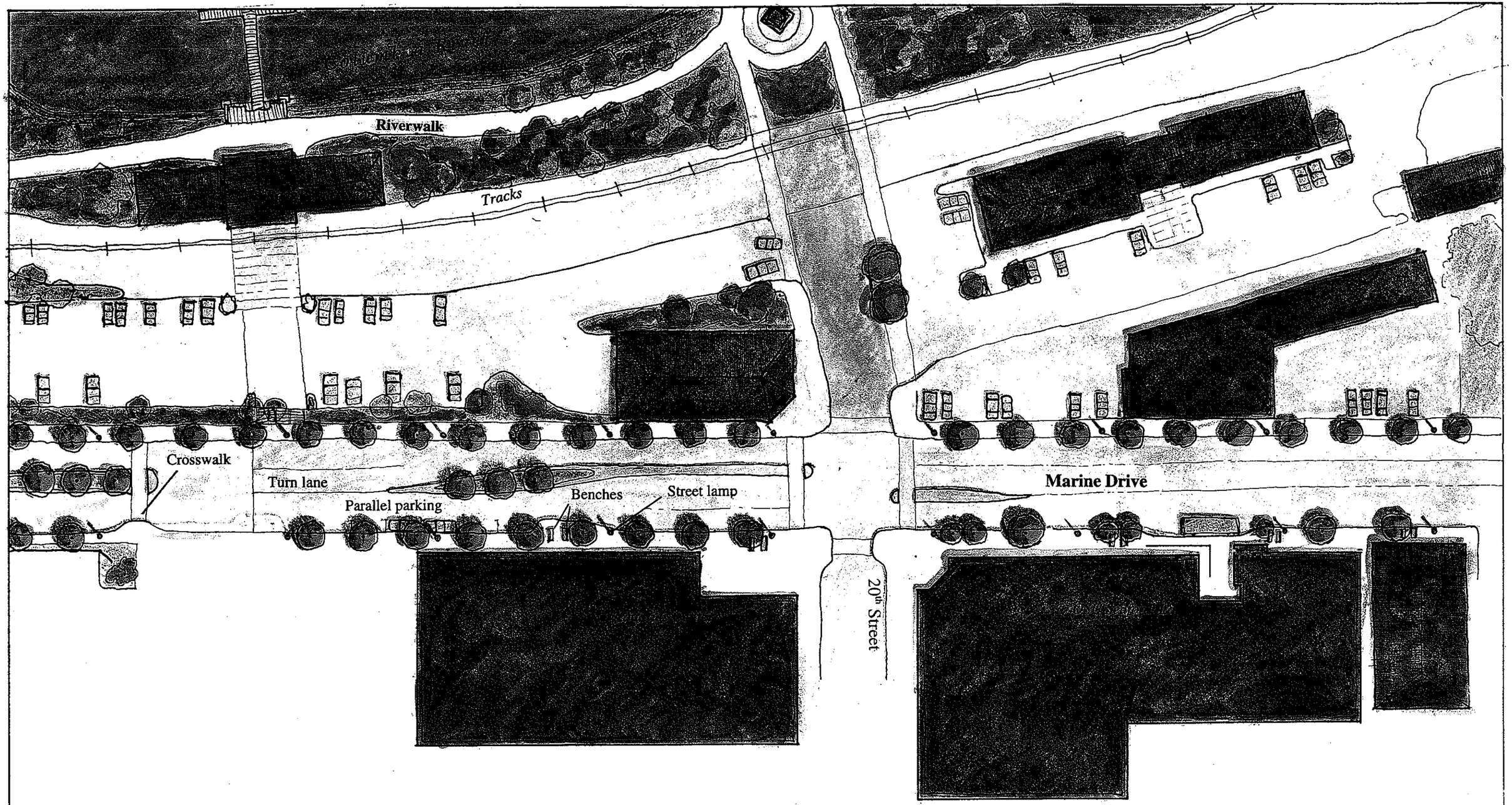

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Illustrative Plan

19th Street to 21st Street

Astoria Transportation & Growth Management Plan

1" : 50'

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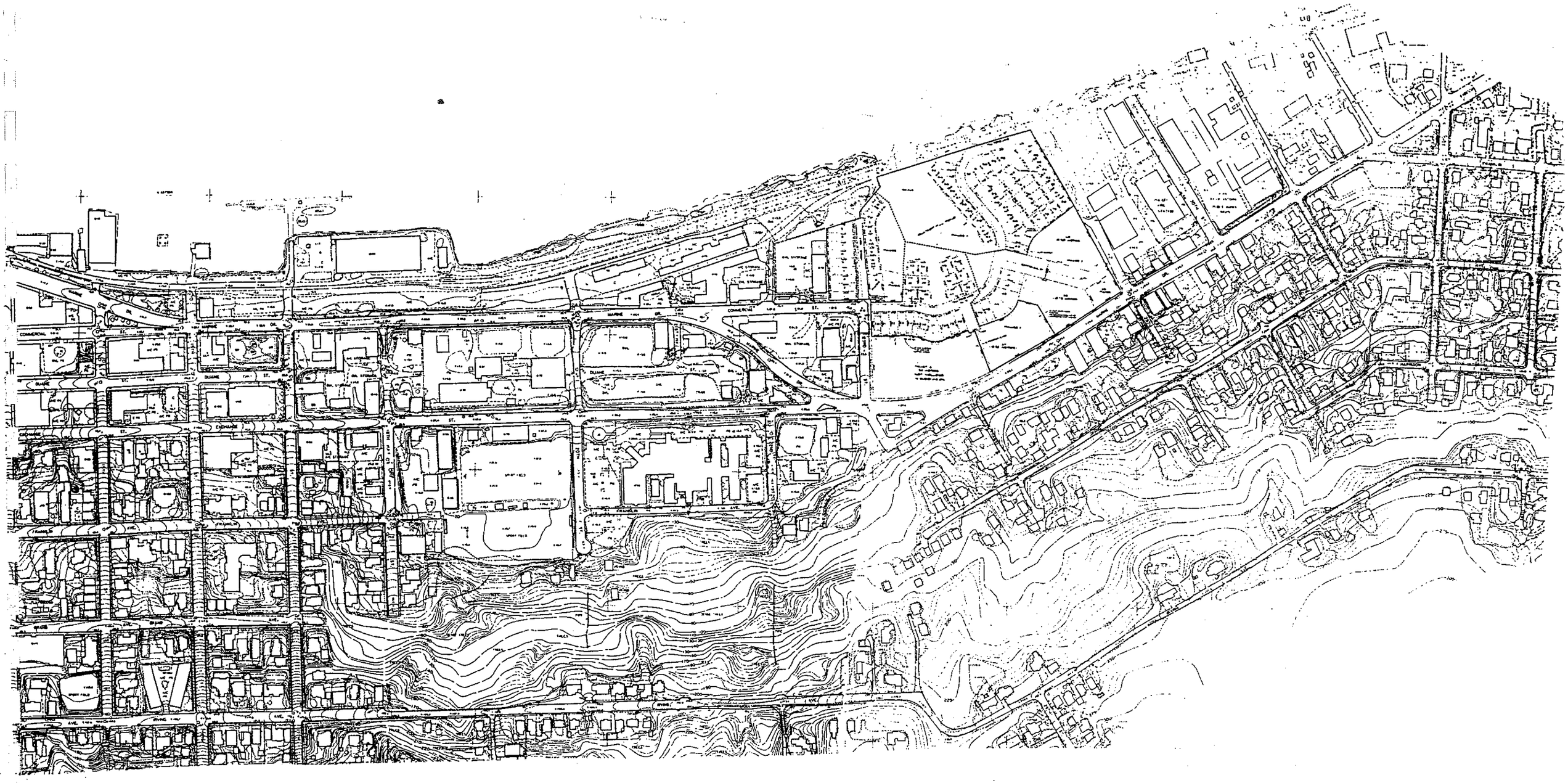
Astoria Gateway Plan

Street View East along Marine Drive
West of 30th Street

Astoria Gateway Plan

Street View East along Marine Drive
West of 20th Street



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Existing Conditions

Topography, Streets and Lots

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0 100 200 300 ft

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Legend

B = Business-type use
R = Residential use above Business use
C = Civic-type use
= Proposed New Street

Example of Future Development

30th to 31st Streets &
North side of Marine Drive
to the Columbia River

COMMERCIAL STREET

FIRE/ POLICE

MUSEUM

30th

31st

32nd

33rd

SCHOOL DISTRICT

MARINE DRIVE

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East Gateway

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1 in. = 100ft.

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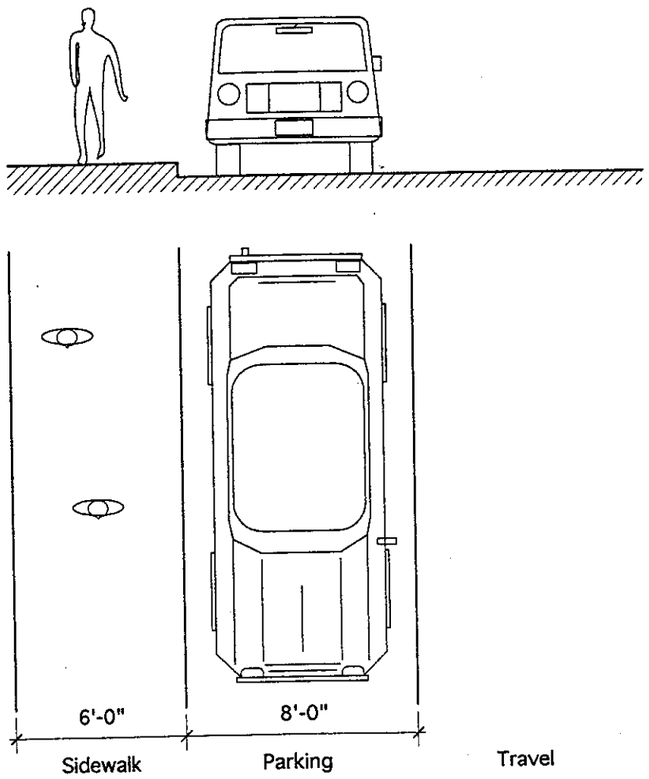
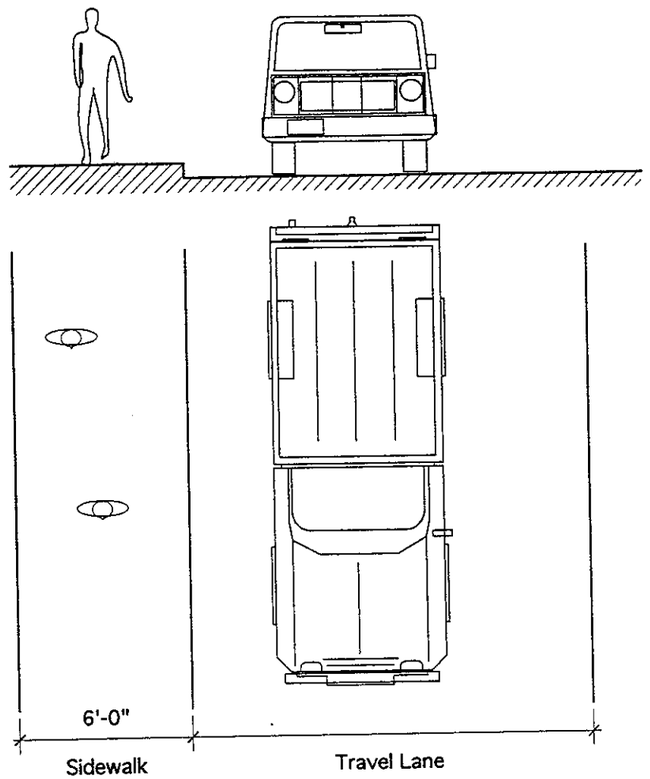


Pedestrian Sidewalk
Existing Conditions with on-street parking
Astoria, TGM



Pedestrian Sidewalk
Existing Conditions without on-street parking
Astoria, TGM

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Preferred Plan Sidewalks

Using Existing Right of Way (R.O.W.)

Astoria Transportation & Growth Management Plan

Not to Scale

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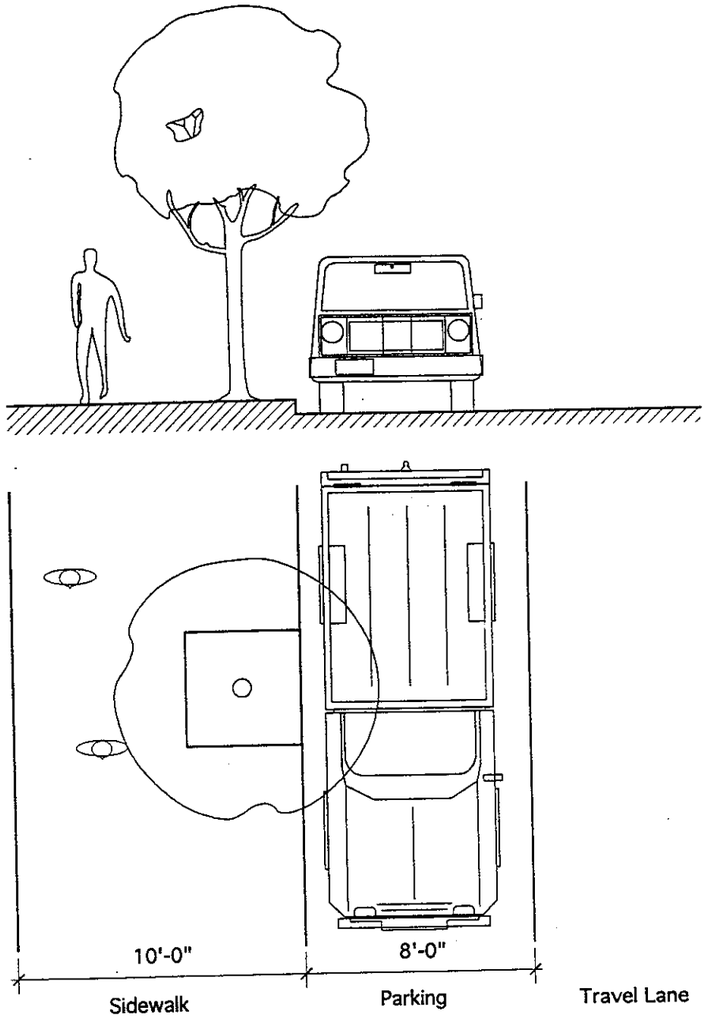
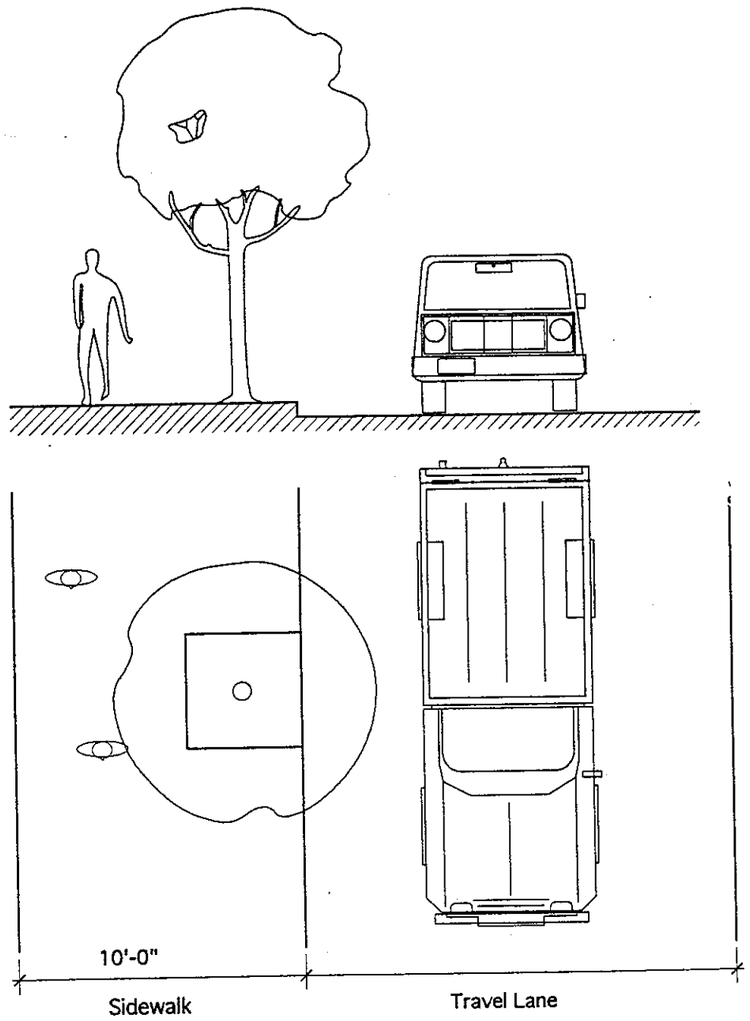


Pedestrian Sidewalk
with on-street parking
Astoria, TGM



Pedestrian Sidewalk
without on-street parking
Astoria, TGM

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Preferred Plan Sidewalks

Using Expanded Right of Way (R.O.W.)

Astoria Transportation & Growth Management Plan

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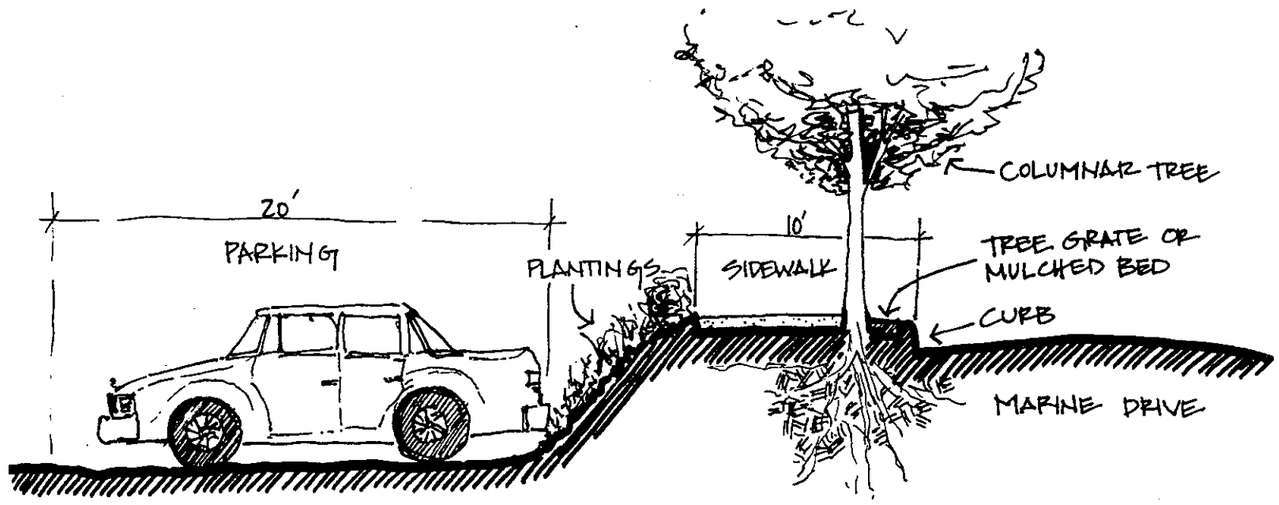
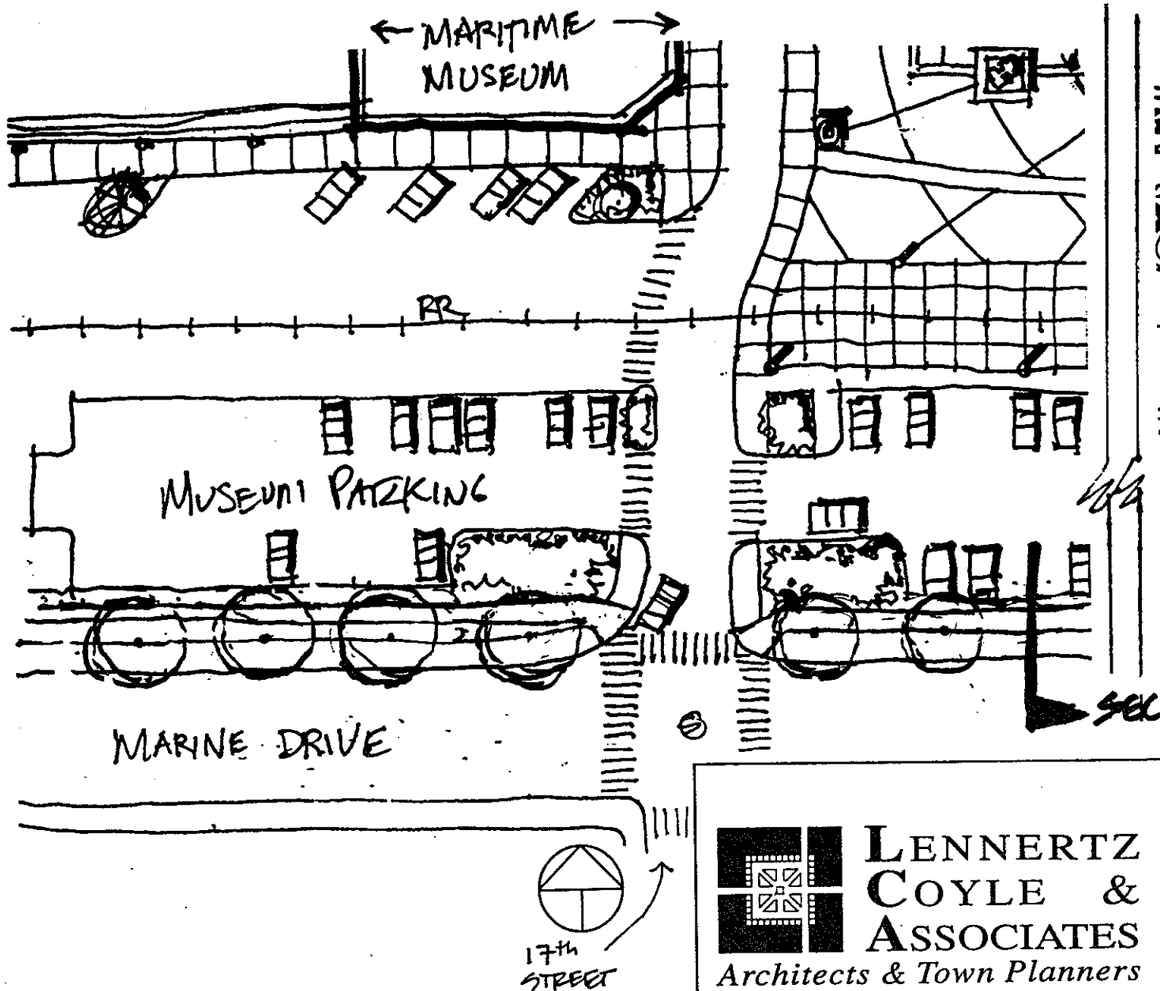
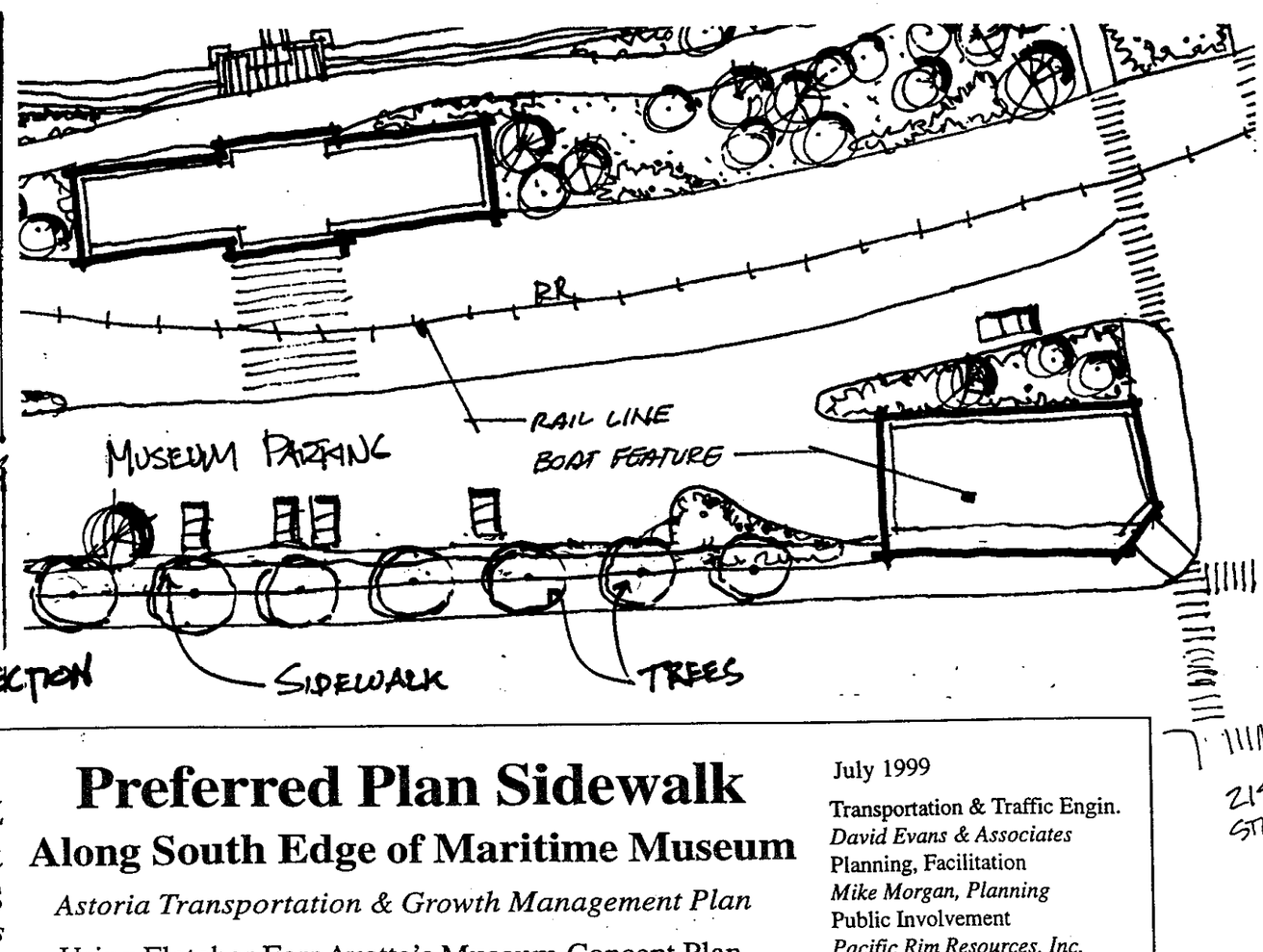


Section through North Edge of Marine Drive @ Maritime Museum





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Preferred Plan Sidewalk
Along South Edge of Maritime Museum

Astoria Transportation & Growth Management Plan

Using Fletcher Farr Ayotte's Museum Concept Plan

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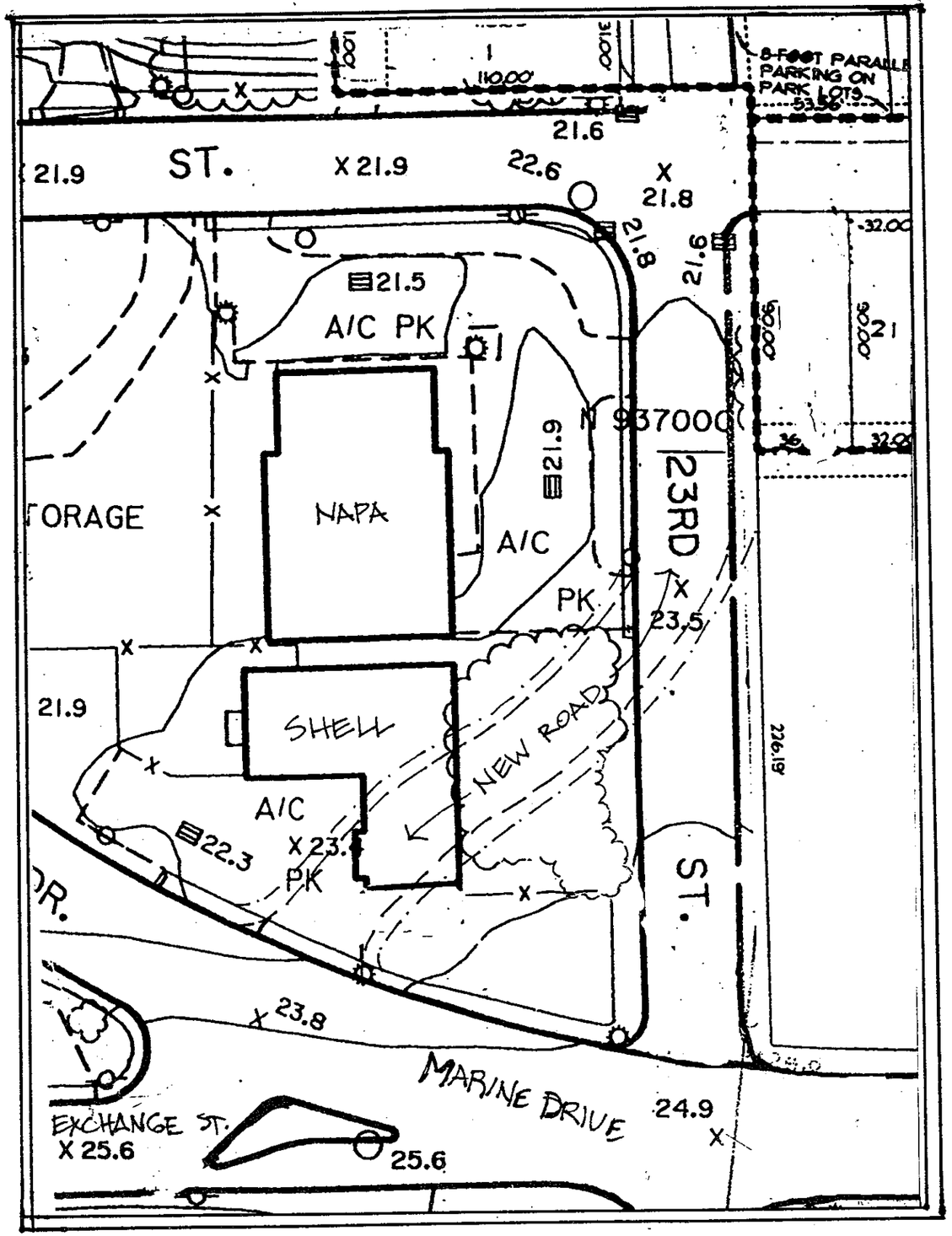
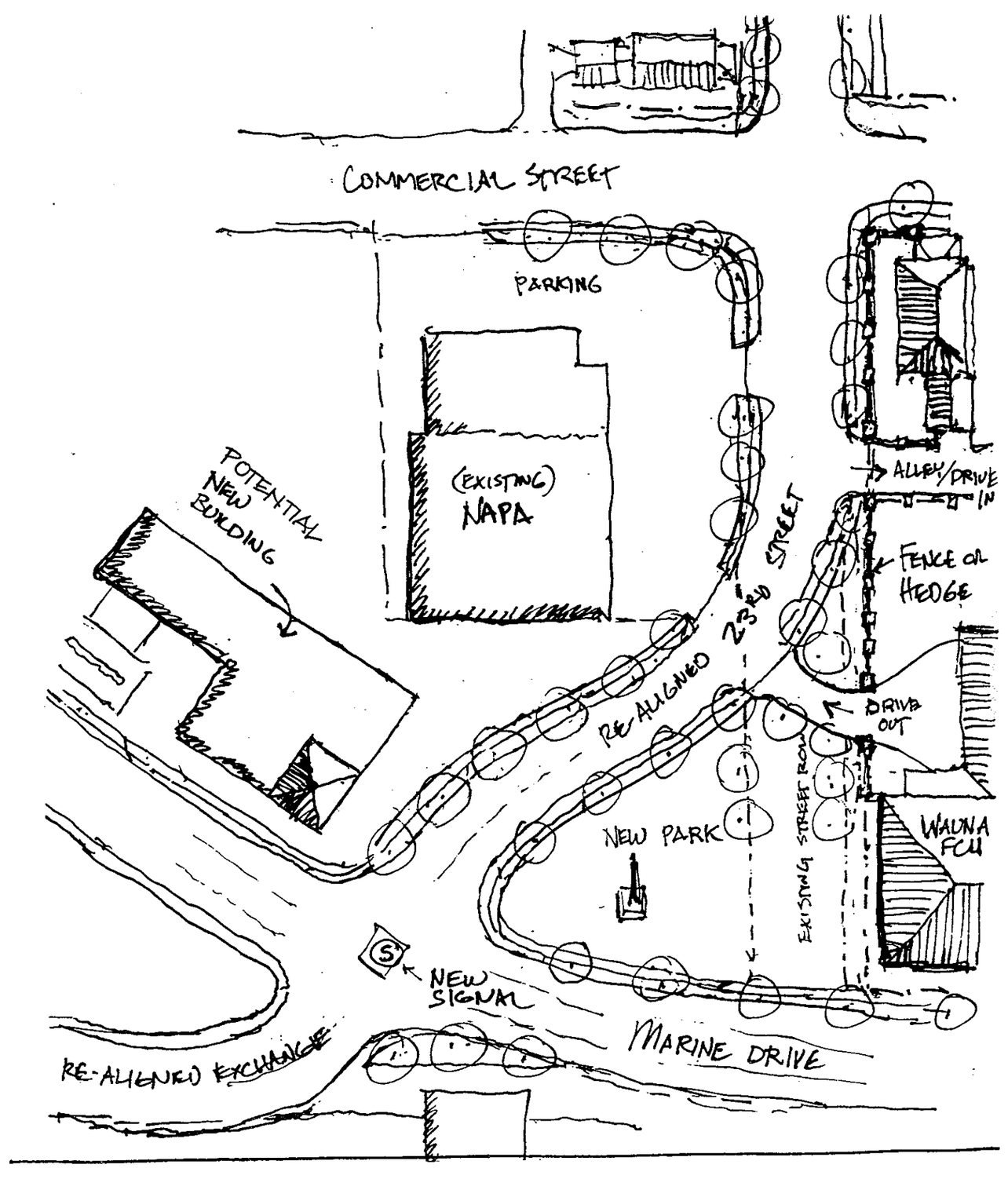


Existing Conditions



Proposed 23rd Street Realignment
Astoria
1 in - 50 ft
TGM
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