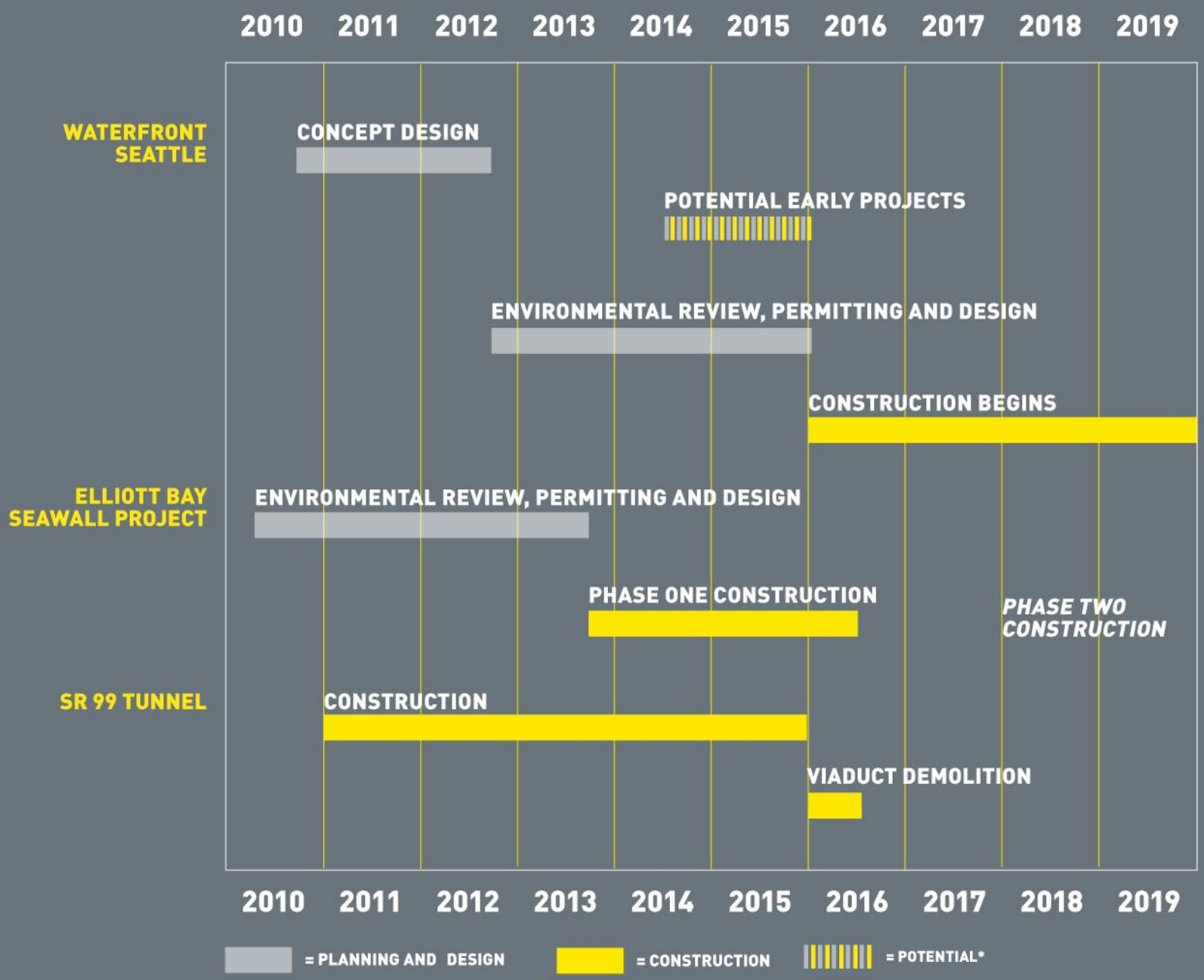
waterfront Seattle

STREET + TRANSIT UPDATE

AGENDA

- Seawall Update
- Street Design
- Local Waterfront Transit
- Waterfront Seattle - Public Meeting Highlights
- Waterfront Seattle Art Update



*Could Include: Improved east-west pedestrian connections, Railroad Way S. pedestrian street, Pedestrian bridge at Vine St & hillclimb assist at Union St and Waterfront Park, Pier 62/63

ALASKAN WAY

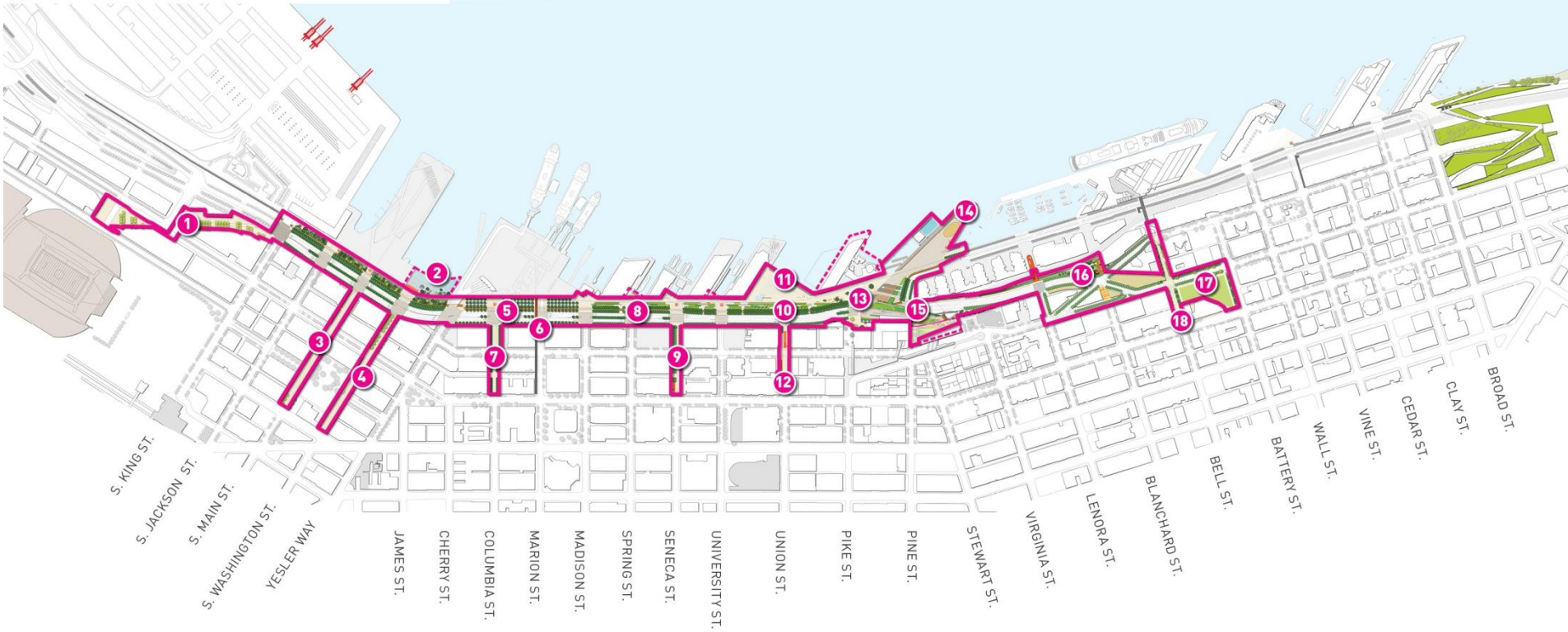
A GREAT URBAN STREET

THE VISION FOR ALASKAN WAY

- Create a great urban street for all users, including pedestrians, bicyclists, transit, freight, cars, parking and more!
- Provide effective regional transportation connections and improved local east-west connections
- Integrate the street into the overall design for the waterfront

Waterfront Streets

Core Projects



1. RAILROAD WAY
2. SEAWALL BEACH
3. S. MAIN ST IMPROVEMENTS
4. S. WASH. ST. IMPROVEMENTS
5. COLMAN DOCK GALLERY
6. MARION ST. BRIDGE
7. COLUMBIA ST. IMPROVEMENTS
8. HISTORIC PIER WALK
9. SENECA ST. IMPROVEMENTS
10. TIDELINE PROMENADE
11. UNION STREET PIER
12. UNION ST. IMPROVEMENTS
13. AQUARIUM PLAZA
14. PIER 62/63
15. OVERLOOK WALK
16. BELLTOWN BLUFF
17. BELLTOWN INTERIM IMPROVEMENTS
18. BELL ST. IMPROVEMENTS

0.5 MILE

STREET DESIGN ELEMENTS

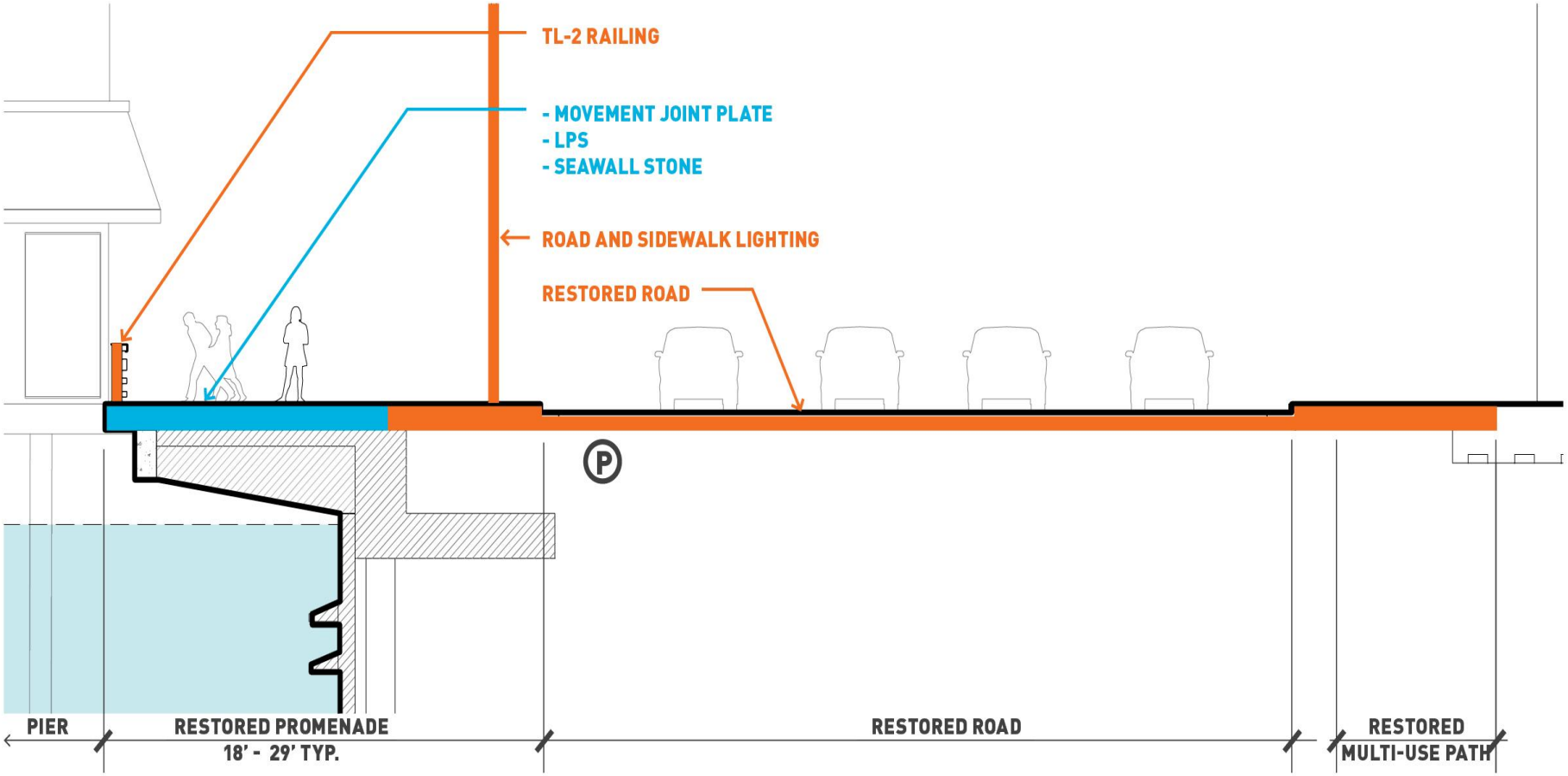
- Two general purpose vehicle lanes in each direction
- North-south bicycle route
- Pedestrian crossings and promenade
- Curb space for parking, deliveries, etc.
- Transit service and connections
- Ferry access
- Freight route

PROMENADE

PROMENADE ELEMENTS

- Continuous north-south along corridor
- Generous width includes planted buffers
- Coordination with Seawall project

RESTORED PROMENADE TYPICAL SECTION

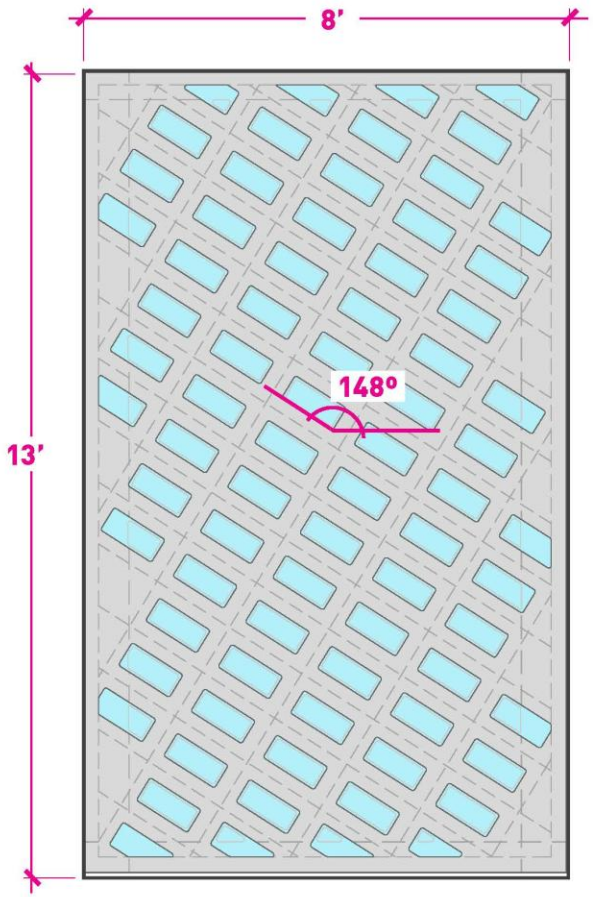


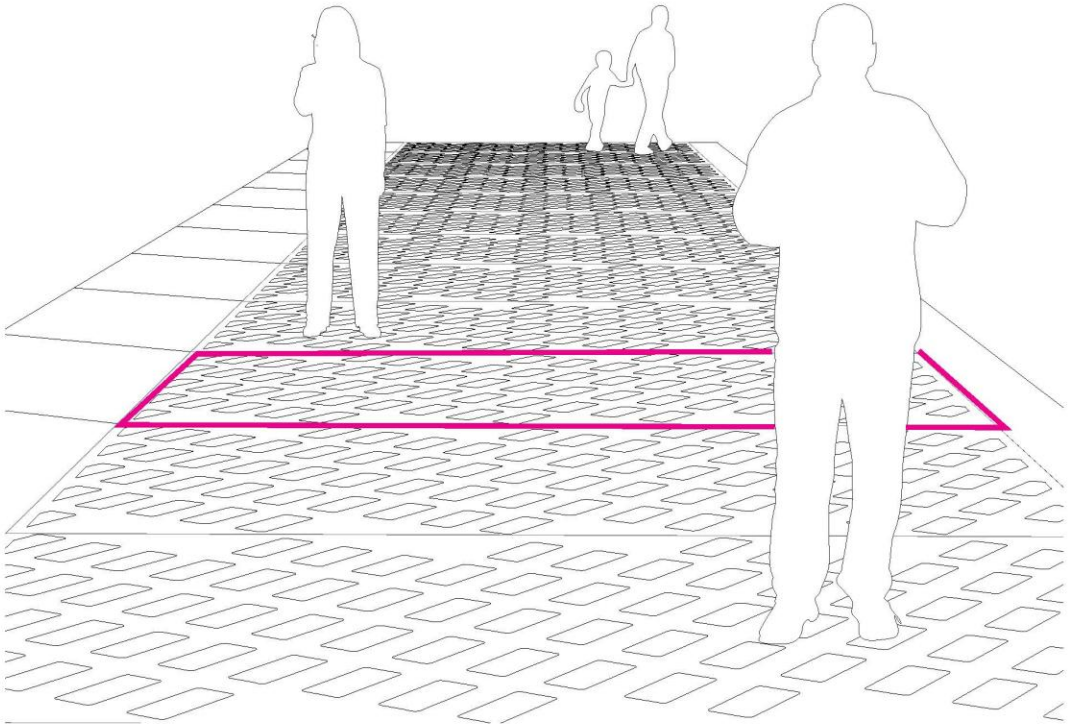
PERMANENT COMPONENTS

TEMPORARY COMPONENTS

LPS GLASS PATTERN STUDIES

12” X 5” RECTANGLE





LOOKING NORTH ALONG LPS

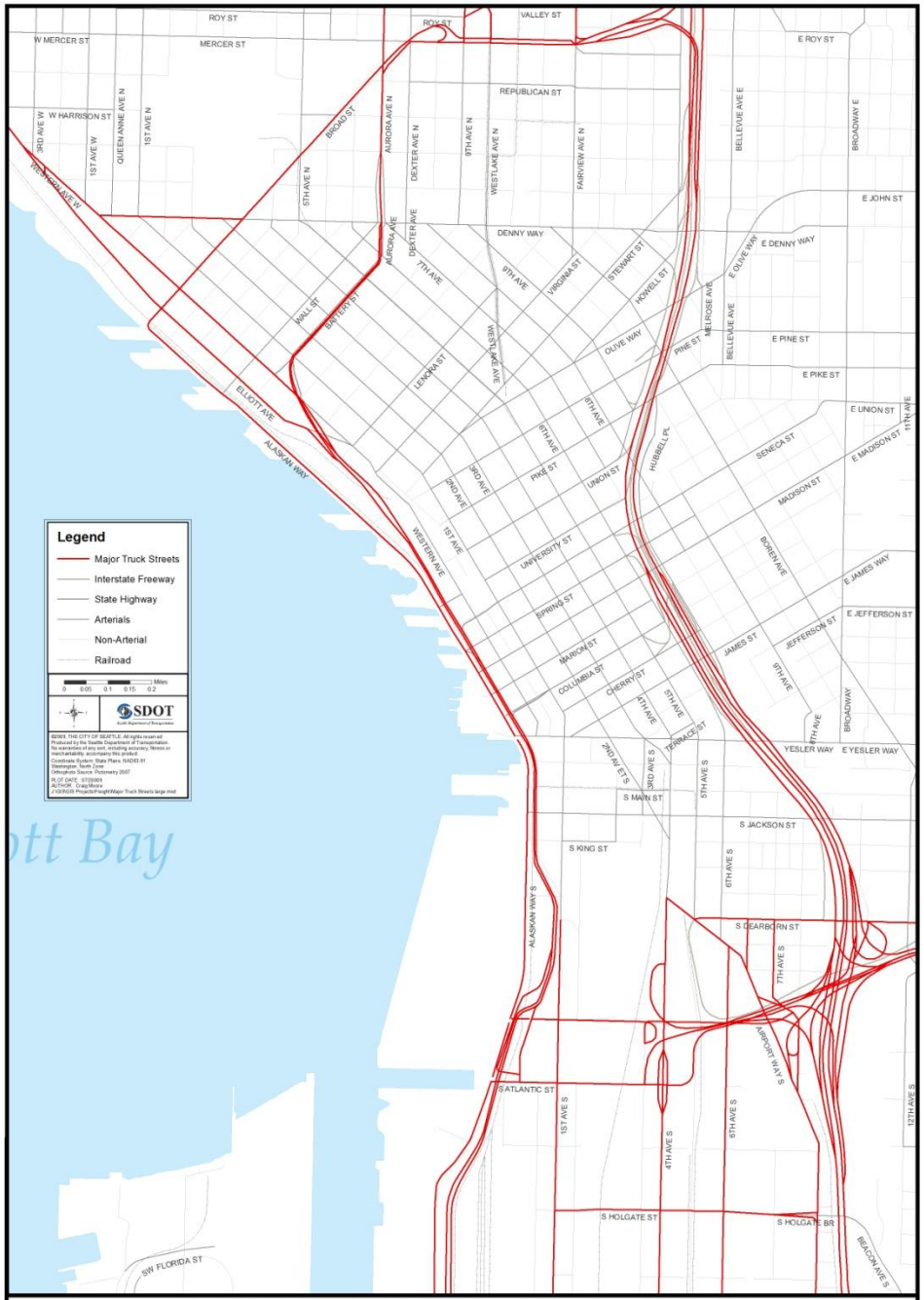
BICYCLES

TWO-WAY CYCLE TRACK

- 2012 concept design included multi-use trail
- State of the art bicycle facility

- Safe, reliable and well-connected
- Separated from vehicle lanes and pedestrian promenade
- Encourages use by a wide range of cyclists

FREIGHT



Downtown Seattle Major Truck Streets


Worldwide Services
Synchronizing the world of commerce
ups


BALLARD OIL


Peterbilt

LOCAL WATERFRONT TRANSIT

LOCAL WATERFRONT TRANSIT

1. Studying several options including:

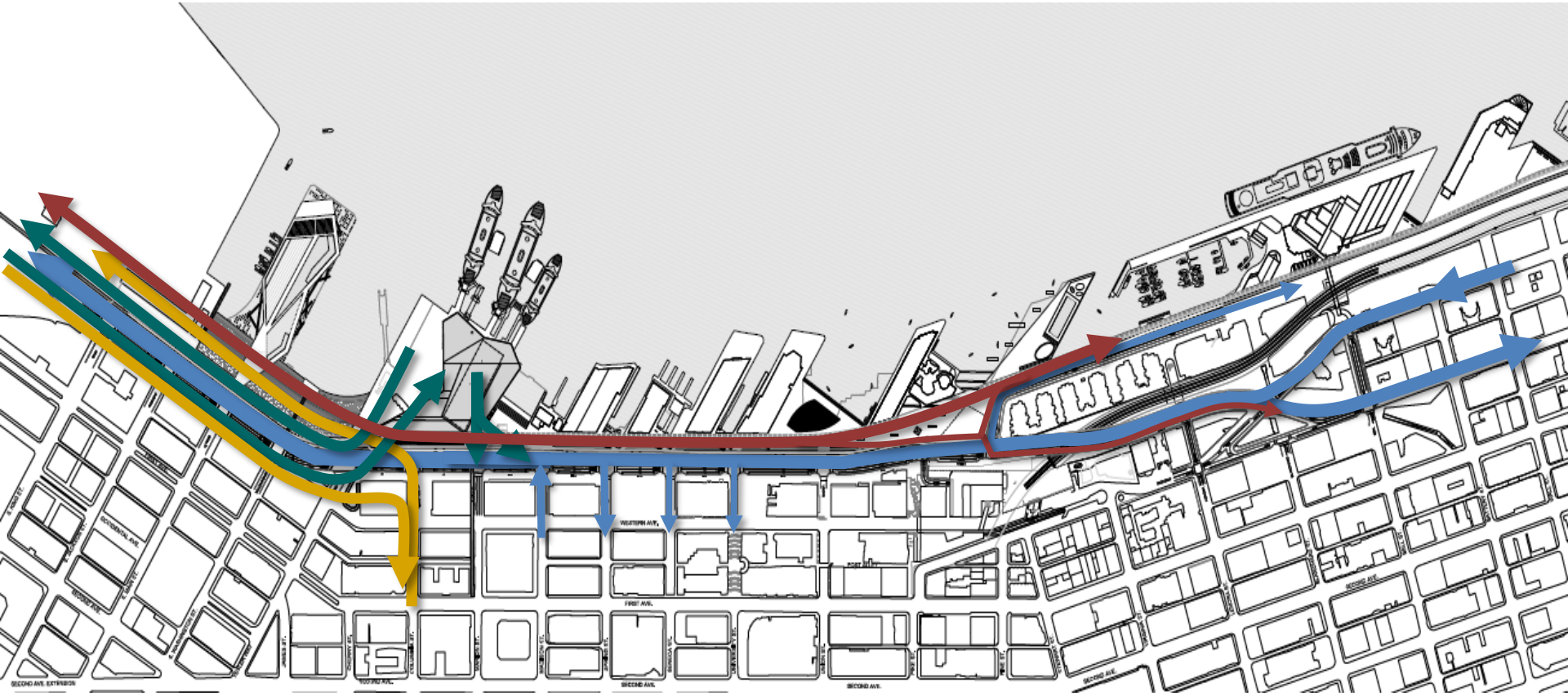
- Historic streetcar
- Modern streetcar
- Rubber-tire

2. Each option works in a shared street with traffic

FUNCTIONS OF THE STREET

STREET DESIGN

FUNCTIONS OF THE STREET



VEHICLES, PARKING AND LOADING

FERRIES: LOADING AND UNLOADING

TRANSIT: SW TRANSIT PATHWAY

NORTH/SOUTH BICYCLE AND PEDESTRIAN MOVEMENT

STREET DESIGN

ALASKAN WAY

FUNCTIONS OF THE STREET

KING TO YESLER	YESLER TO MADISON	MADISON TO PINE
SWTP DEDICATED LANES (2)	SWTP DEDICATED LANES (0-2)	GENERAL PURPOSE LANES (4)
GENERAL PURPOSE LANES (4)	GENERAL PURPOSE LANES (4)	WATERFRONT TRANSIT (SHARED)
FERRY QUEUING LANES (1-2)	WATERFRONT TRANSIT (SHARED)	PARKING/LOADING (2)
PARKING/LOADING (0-1)	FERRY PARKING/LOADING (0-2)	

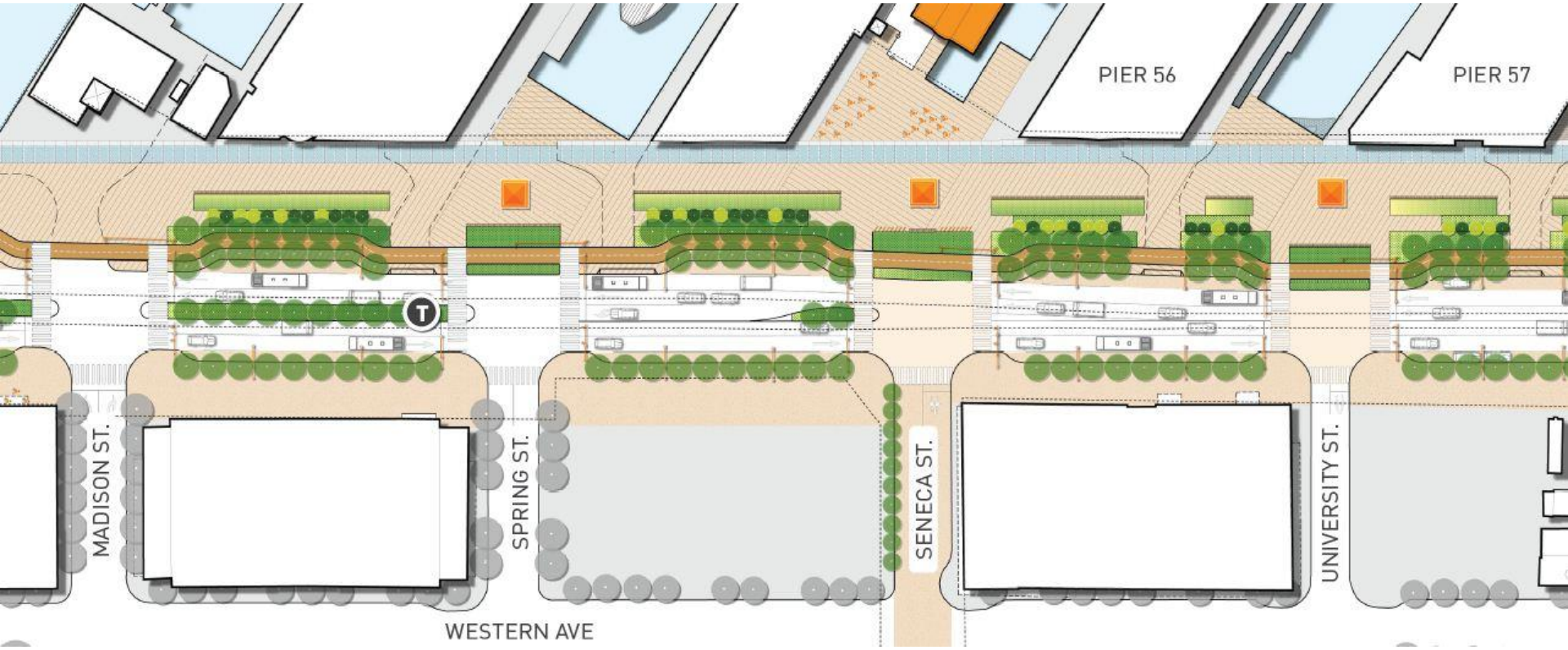
.25 MI.

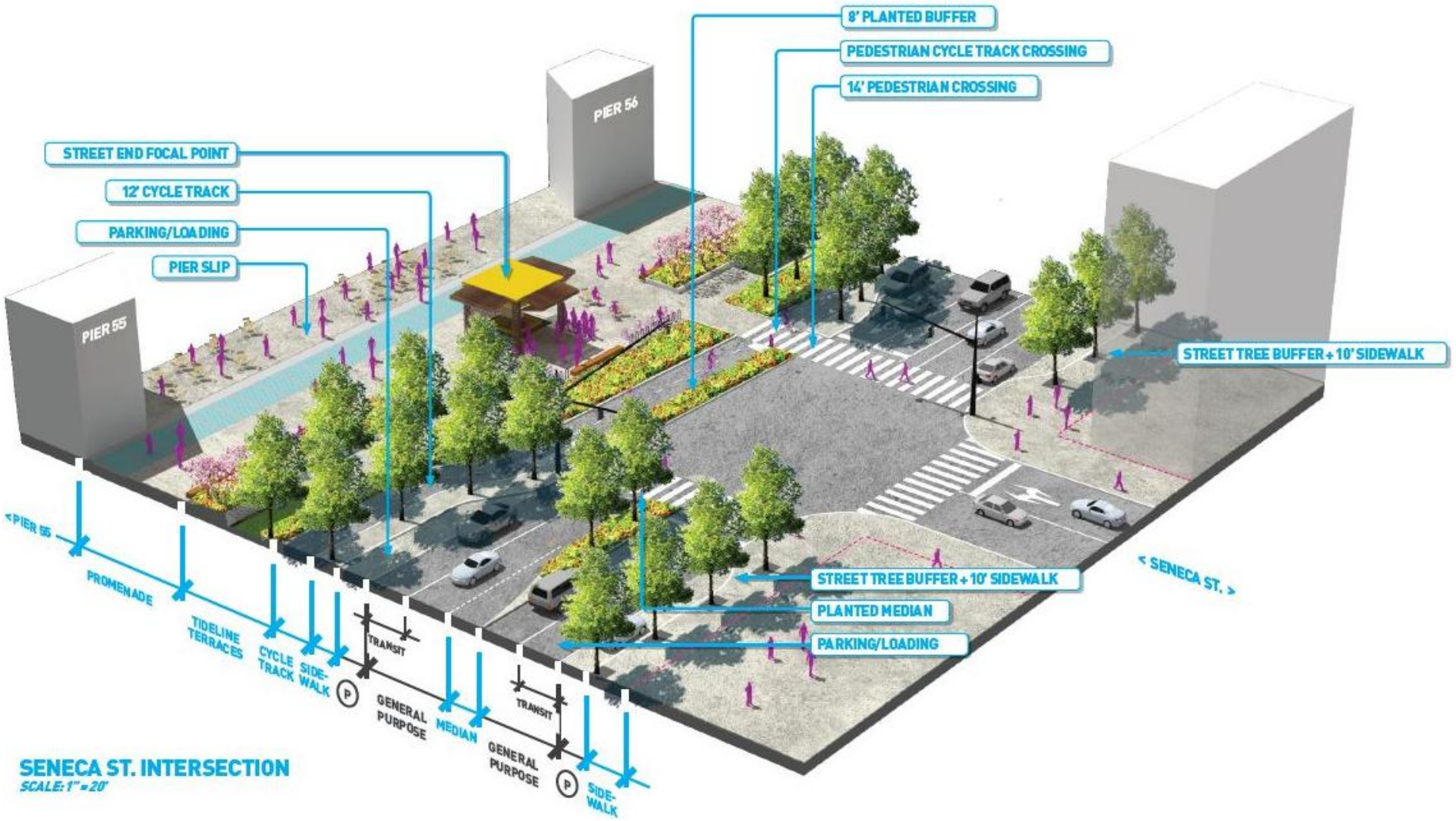
N

STREET DESIGN

MADISON ST. TO PINE ST.

JUNE 2013 - CURRENT STREET DESIGN





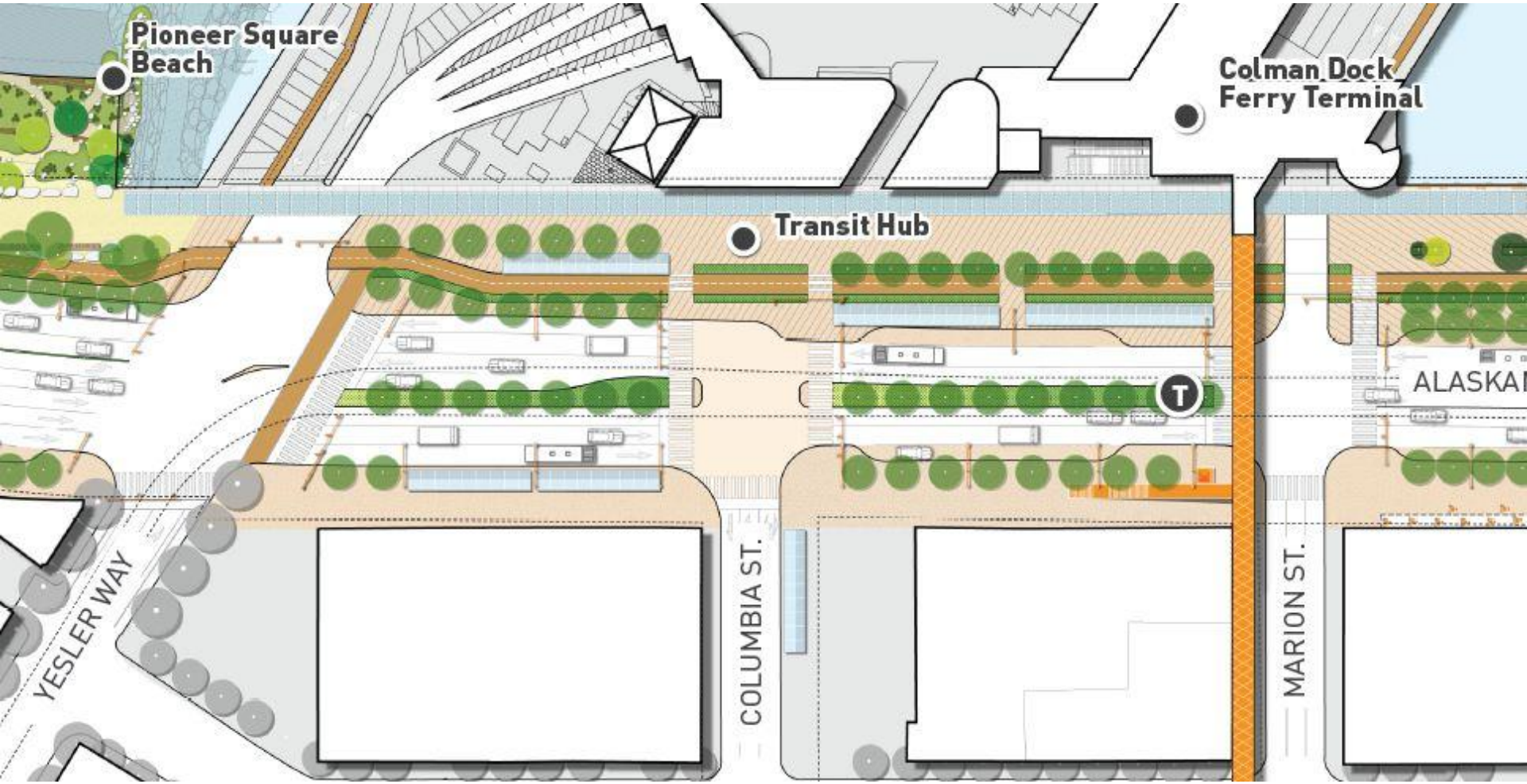
SENECA ST. INTERSECTION

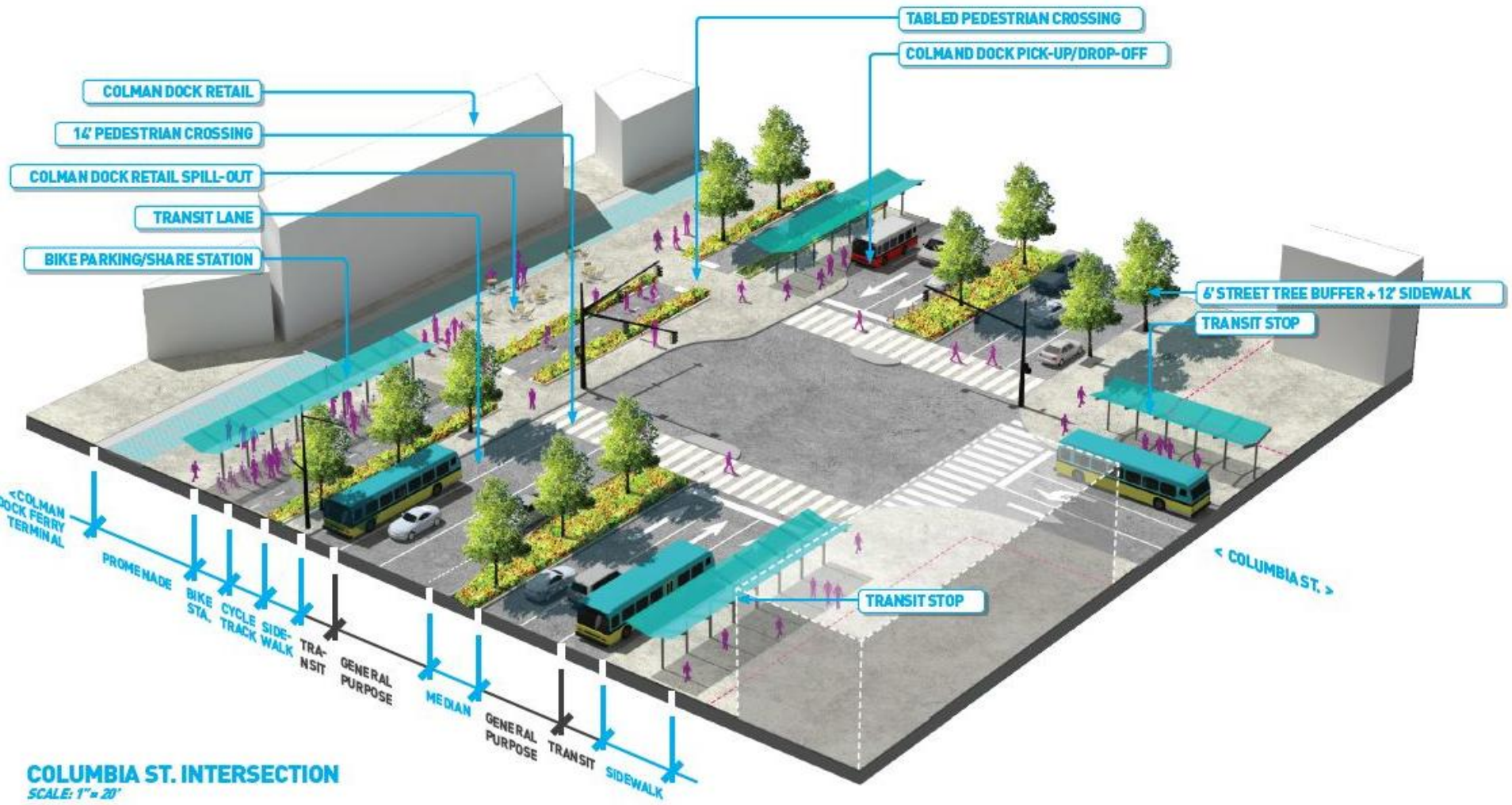
SCALE: 1" = 20'

STREET DESIGN

YESLER WAY TO MADISON ST.

JUNE 2013 - CURRENT STREET DESIGN





COLUMBIA ST. INTERSECTION

SCALE: 1" = 20'

STREET DESIGN

COLUMBIA ST. INTERSECTION

STREET DESIGN

S. KING ST. TO YESLER WAY

JUNE 2013 - CURRENT DESIGN

STREET DESIGN

S. KING ST. TO YESLER WAY

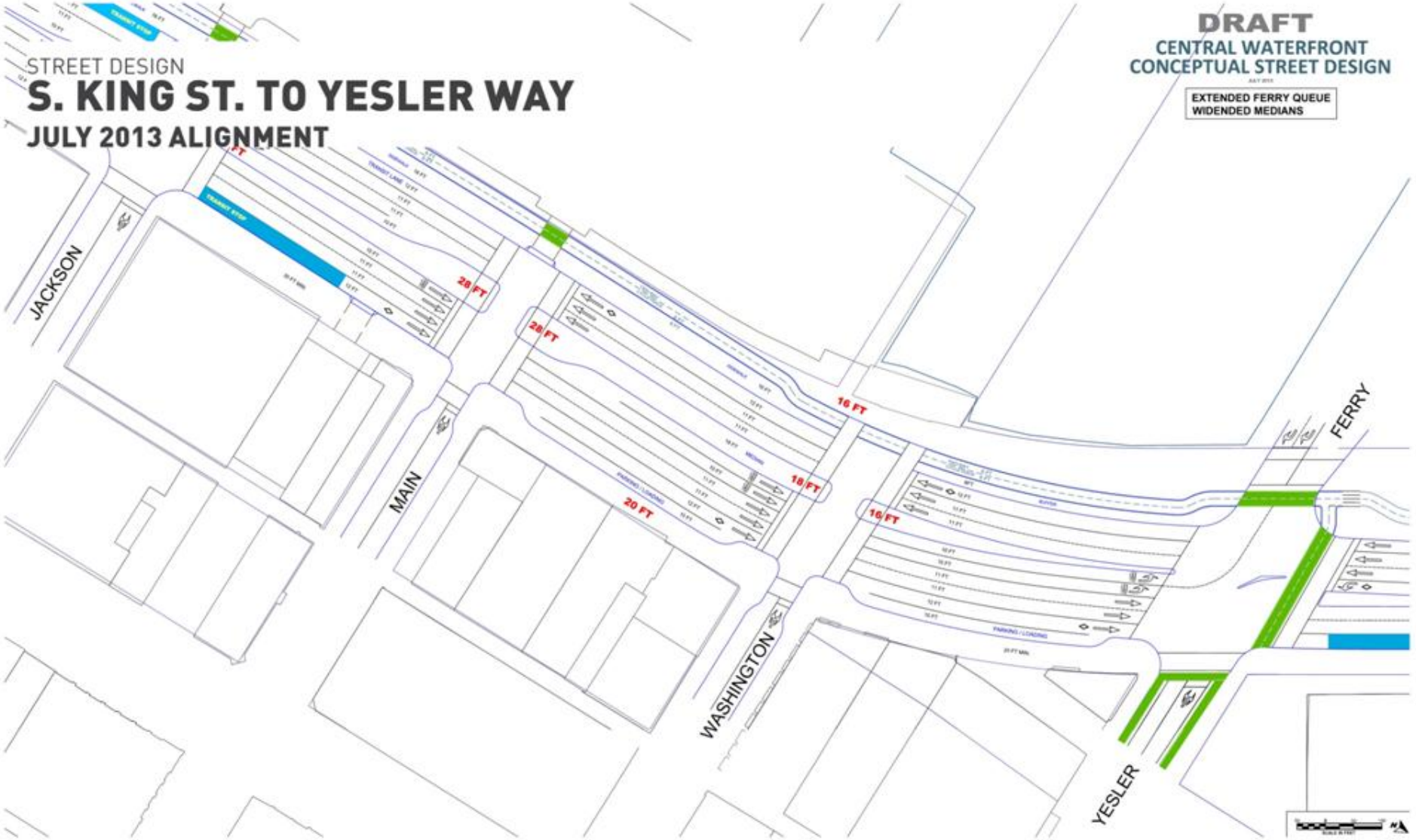
JULY 2013 ALIGNMENT

DRAFT

CENTRAL WATERFRONT CONCEPTUAL STREET DESIGN

JULY 2013

EXTENDED FERRY QUEUE
WIDENDED MEDIANS



GREAT URBAN STREETS

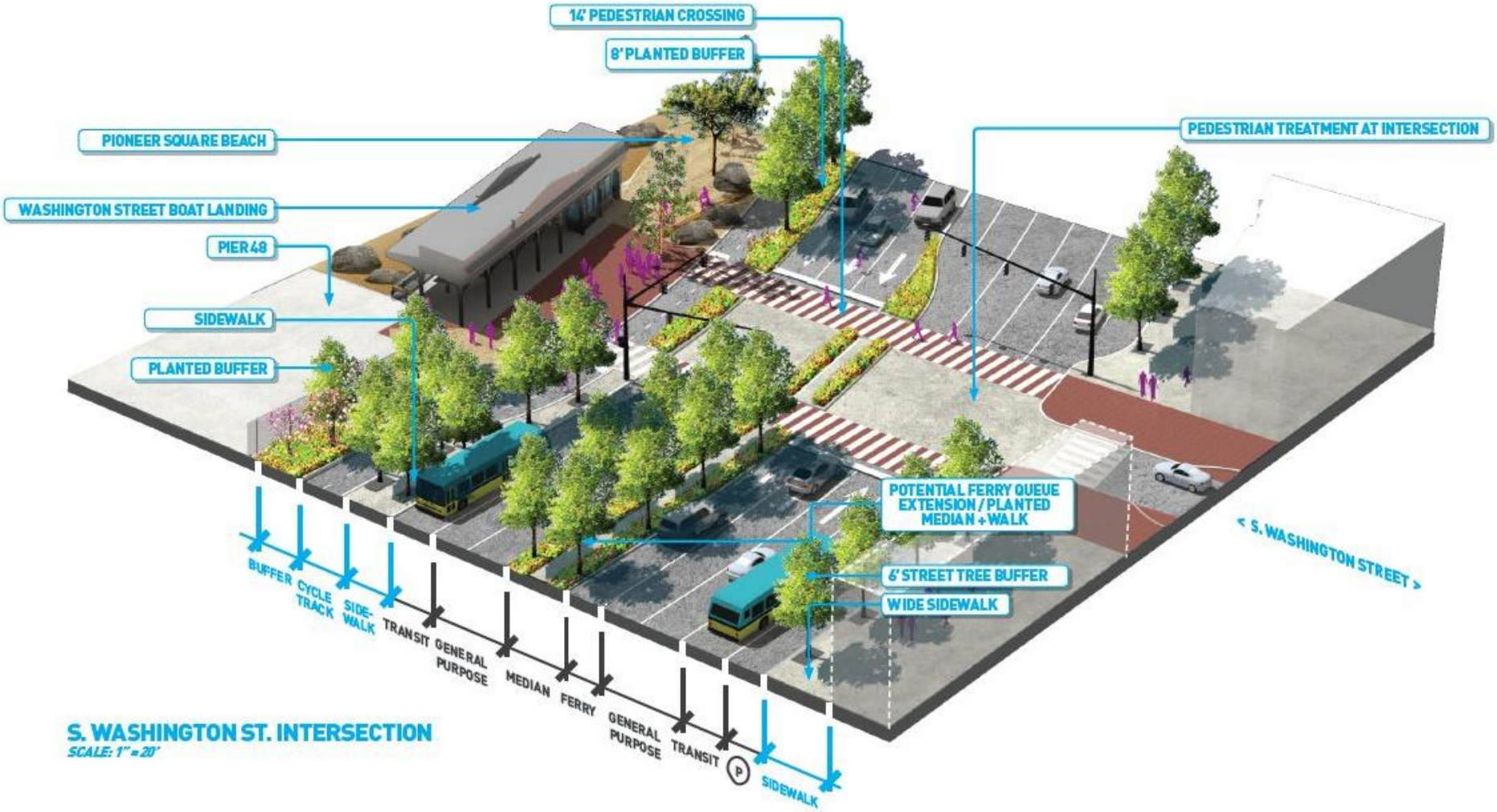
- Adequate sidewalk scale relative to street scale
- Adequate buffer between pedestrians and traffic
- Pedestrian-oriented intersection design
- Designed medians


RELATIVE SIDEWALK SCALE


INTERSECTION TREATMENTS


MEDIAN TREATMENTS


BUFFER TREATMENT


14' PEDESTRIAN CROSSING
8' PLANTED BUFFER
PEDESTRIAN TREATMENT AT INTERSECTION
PIONEER SQUARE BEACH
WASHINGTON STREET BOAT LANDING
PIER 48
SIDEWALK
PLANTED BUFFER
POTENTIAL FERRY QUEUE EXTENSION / PLANTED MEDIAN + WALK
6' STREET TREE BUFFER
WIDE SIDEWALK
< S. WASHINGTON STREET >
BUFFER
CYCLE TRACK
SIDE-WALK
TRANSIT
GENERAL PURPOSE
MEDIAN
FERRY
GENERAL PURPOSE
TRANSIT
P
SIDEWALK
S. WASHINGTON ST. INTERSECTION
SCALE: 1" = 20'

STREET DESIGN

S. WASHINGTON ST. INTERSECTION

LOCAL WATERFRONT TRANSIT

LOCAL WATERFRONT TRANSIT

- Serves local waterfront market
- Operates in shared street lane with traffic
- Frequent service
- User-friendly and easy to navigate
- Fits waterfront character and demand
- Compelling alternative to driving
- Complementary to other downtown transit

HISTORIC STREETCAR

Option A

- Lower level of investment
- Includes doors on both sides of the vehicle and an additional operator
- High platform

Option B

- Option A plus elective upgrades (higher investment)
- Automated door operation, improved lighting, similar power service as modern streetcar, and wheelchair lifts
- Low platforms


MODERN STREETCAR
SEATTLE STREETCAR

RUBBER TIRE TRANSIT

Option A
- Mini-bus style vehicle
- Battery-powered; zero emissions
- Large side windows and exterior row seating
- Low floor boarding (vehicle dependent)
- Lower passenger capacity

Option B
- Coach style bus with 2 doors
- Battery-powered; zero emissions
- Higher passenger capacity

ALIGNMENT + STATION LOCATIONS

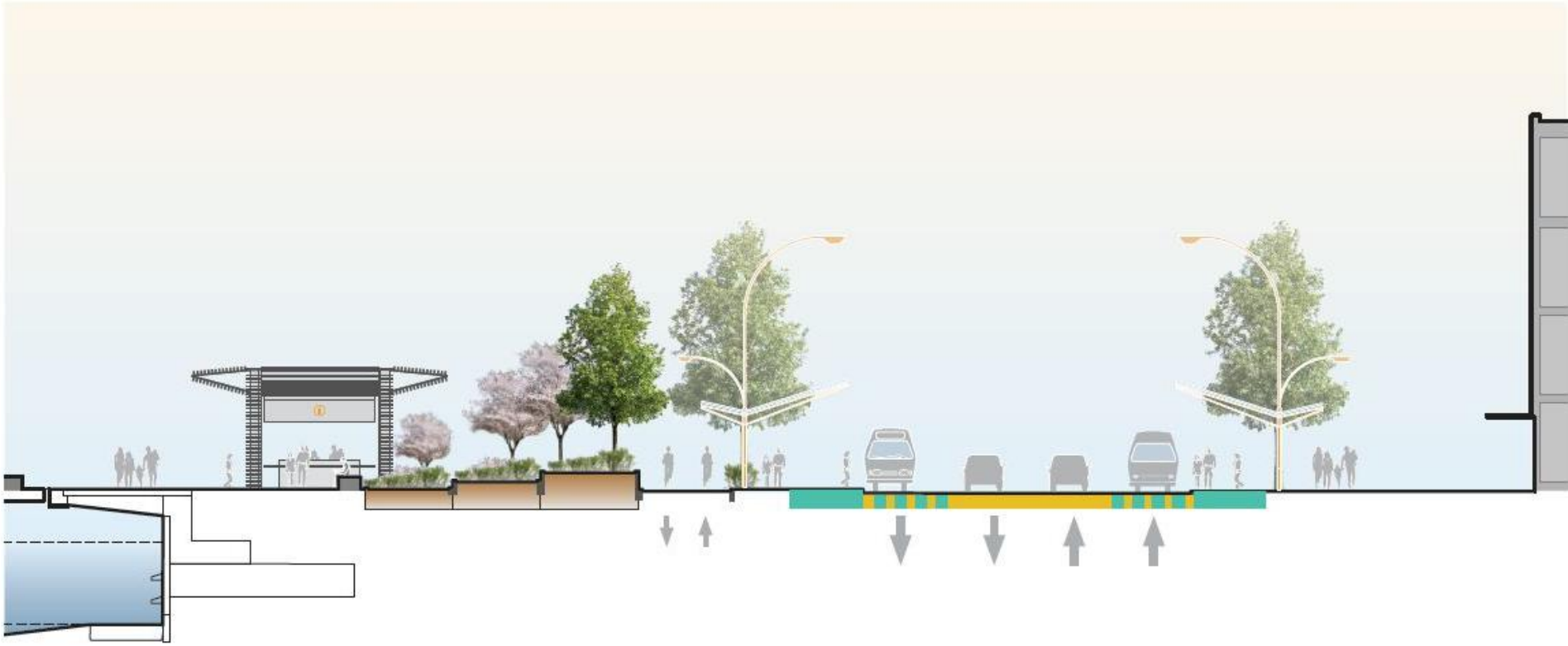
HISTORIC STREETCAR

STREET DESIGN

STREET CAR STOP BETWEEN MADISON AND SPRING

STREET DESIGN

RUBBER TIRE TRANSIT STOP BETWEEN SENECA AND UNIVERSITY



WATERFRONT TRANSIT (SHARED)

GENERAL PURPOSE

0' 3' 6' 12' 24'

LOCAL WATERFRONT TRANSIT ANALYSIS

- Vehicle/system capacity
- Vehicle operations
- Connectivity
- Travel time
- Safety
- Rider attraction/ comfort/ADA
- Noise
- Air quality
- Aesthetics
- Traffic impact
- Utility conflicts
- Operations and maintenance costs
- Capital costs

SUMMARY RESULTS

The following table summarizes the results of each waterfront transit alternative's operating characteristics, effects on the environment, and costs.

	Historic Streetcar		Modern Streetcar	Rubber Tire Transit	
	Option A: Low Investment	**Option B: High Investment**		**Option A: Mini-bus**	**Option B: Coach**
Vehicle Description	Added doors on both sides; no change to high floor loading; not integrated with the rest of the Seattle streetcar system.	Option A improvements plus upgrades for low platform boarding and operation on other electrified streetcar alignments - automated doors, power system, wheelchair lifts.	Vehicles similar to South Lake Union and First Hill service.	Small battery powered mini-bus-style vehicle with low floor boarding and a single door.	Large battery powered coach style bus with quick charge system, low floor boarding and front and back doors.
					
Operating Characteristics					
Vehicle Capacity/Performance					
Safety/ADA + Accessibility					
Rider Attraction + Satisfaction					
Effects on the Environment					
Cost					
Operations and Maintenance					
Capital					

KEY TO RANKING

LOWER PERFORMING — HIGHER PERFORMING


DISCUSSION QUESTIONS
• How can the waterfront help to restore the natural ecology of Elliott Bay and showcase sustainable design?
• What are the long-term environmental stewardship opportunities (educational, youth/student, partnerships)?
• How can the waterfront program encourage ecological stewardship?
• How can we (you) interact with nature on the water?
• How can the waterfront connect to our Pacific North
ality of life?


BUS/SHUTTLE
BIKING
DRIVING
WALKING
WATER TAXI/AQUABUS


Waterfront
Seattle
Hang out
w/ These guys

STREET + TRANSIT PUBLIC MEETING ATTENDANCE

- Approximately 300 attendees
- Approximately 40% new attendees
- Around 85% of meeting attendees live/work in Seattle.
- Grew project email list by 282

STREET + TRANSIT PUBLIC MEETING - LOCAL WATERFRONT TRANSIT

Attendees weighed in on historic and modern streetcar, and rubber tire options.

Some of what we heard:

- Honor George Benson's legacy
- Use a mix of modern and historic streetcars
- Mini bus frequency will attract more use
- Connect waterfront transit to City and other systems

STREET + TRANSIT PUBLIC MEETING - STREET DESIGN

Attendees weighed in on overall design for Alaskan Way.

Some of what we heard:

- Support and excitement for the cycle track
- General support for the design and balance of uses
- Consider narrow lanes to slow down traffic/reduce footprint
- Use textured/tactile wayfinding for peds


QUESTIONS?

BACK POCKET

DRAFT - 6/25/13

OPERATING CHARACTERISTICS (4.1)

Measures	Historic Streetcar		Modern Streetcar	Rubber Tire Transit	
	Option A: Lower Investment	Option B: Higher Investment		Option A: Mini-bus	Option B: Coach
					
1. Vehicle/System Capacity	• 15 minute headways; approximately 290 passengers per hour per direction • Headways limited by single track with a passing track between Lenora and Broad • Vehicles would serve 2004 ridership and be slightly over capacity for potential future peak summer ridership		• 15 minute headways; approximately 450 passengers per hour per direction • Easy to purchase additional vehicles • Headways limited by single track with a passing track between Lenora and Broad • Largest passenger capacity • Vehicles would serve 2004 ridership and potential future peak summer ridership	• 10 minute headways • Approximately 150 - 200 passengers per hour per direction • Easy to purchase additional vehicles • Vehicles would serve 2004 ridership, but not potential future peak summer ridership.	• 10 minute headways • Approximately 250-350 passengers per hour per direction • Easy to purchase additional vehicles • Vehicles would serve 2004 ridership and potential future peak summer ridership
2. Vehicle Operations (flexibility, grade)	• Cannot alter route during construction or a track obstruction • Can operate on maximum grade reached on route • Can only operate on waterfront line	• Cannot alter route during construction or a track obstruction • Can operate on maximum grade reached on route • Can be interlined with other all-electrified streetcar alignments (except First Hill)	• Cannot alter route during construction or a track obstruction • Can operate on maximum grade reached on route • Can be interlined with other streetcar services	• Can easily reroute during construction or avoid lane blockages if needed • Can operate on maximum grade reached on route	
3. Connectivity	• Operates within close proximity to other transit service • Difficult to extend route to the north because of grades, BNSF crossing and Myrtle-Edwards Park		• Operates within close proximity to other transit service • Difficult to extend route to the north because of grades, BNSF crossing and Myrtle-Edwards Park	• Operates within close proximity to other transit services • Easy to extend route	
4. Travel time	• Round trip run time is approximately 32 minutes; 17 minutes for northbound trip and 15 minutes for southbound trip. • Passenger load time would be approximately 30-40 seconds. • Faster ADA load time with level boarding	• Round trip run time is approximately 32 minutes; 17 minutes for northbound trip and 15 minutes for southbound trip. • Passenger load time would be approximately 20-30 seconds. • Slower ADA load time with wheelchair ramp deployment	• Round trip run time is approximately 30 minutes; 16 minutes for northbound trip and 14 minutes for southbound trip. • Passenger load time would be approximately 10-15 seconds • Faster ADA load time with level boarding	• Round trip run time would be approximately 37 minutes; 20 minutes for northbound trip and 17 minutes for southbound trip • Passenger load time would be approximately 30-40 seconds • Slower ADA load time with wheelchair ramp deployment	• Round trip run time would be approximately 37 minutes; 20 minutes for northbound trip and 17 minutes for southbound trip • Passenger load time would be approximately 15-20 seconds • Faster ADA load time with level boarding
5. Safety	• Needs federal safety certification		• Vehicles would meet federal safety requirements	• Vehicles would meet transit bus safety regulations	
6. Rider Attraction	• Legible and predictable service with trackage and overhead wires • Historic quality of this service could encourage people to travel to waterfront to ride this service		• Legible and predictable service with trackage and overhead wires	• Less predictable and legible transit service compared to rail vehicles	• Less predictable and legible transit service compared to rail vehicles
7. Rider Comfort/ Satisfaction	• Nostalgic appeal of riding historic streetcar • Operation not as smooth as modern • No A/C • Passengers load from median	• Nostalgic appeal of riding historic streetcar • Operation not as smooth as modern • No A/C, but automated doors • Passengers load from median island	• Smooth operations • Two double-doors and a single door for fast loading and unloading • Climate control on streetcars • Passengers load from median island • Attractive and comfortable form of commuting	• New environmentally friendly vehicle, quiet and no fumes • Ride not as smooth as streetcar • Passengers load from curb side stop, which is more protected and pleasant. • Climate control on vehicles	• New environmentally friendly vehicle, quiet and no fumes • Ride not as smooth as streetcar • Passengers load from curb side stop, which is more protected and pleasant. • Climate control on vehicles
8. ADA / Accessibility	• Difficult for ADA passengers to access high platform stations in median	• Low level platforms more comfortable to access for ADA passengers • Median stations can be challenging to access for some ADA passengers	• Level, low-floor boarding • Median platform loading (less comfortable than curb side waiting)	• Vehicle would allow low floor boarding • Curb side loading	• Vehicle would allow low floor boarding • Curb side loading

KEY TO RANKING

LOWER PERFORMING — HIGHER PERFORMING

EFFECTS ON THE ENVIRONMENT AND OTHER WATERFRONT USERS (4.2)

Measures	Historic Streetcar		Modern Streetcar	Rubber Tire Transit	
	Option A: Lower Investment	Option B: Higher Investment		Option A: Mini-bus	Option B: Coach
					
1. Noise	• Operating noise similar to a passenger car • Tight turns could generate noisy wheel squeal		• Operating noise similar to a passenger car • Tight turns could cause noisy wheel squeal	• Operating noise similar to a passenger car or electric trolley	
2. Air Quality	• Electric powered; Seattle's electric power is 98% non-GHG generating		• Electric powered; Seattle's electric power is 98% non-GHG generating	• Electric powered; Seattle's electric power is 98% non-GHG generating	• Electric powered; Seattle's electric power is 98% non-GHG generating
3. Visual Quality	• High platform stations along waterfront may obstruct views • Visual clutter with catenary system (span wires and poles) • Historic streetcars are visually appealing	• Low platforms would preserve waterfront views • Visual clutter with catenary system (span wires and poles) • Historic streetcars are visually appealing	• Sleek and modern looking vehicles • Visual clutter with catenary system (span wires and poles) • Battery operation in some portions of the alignment would eliminate visual impact • Low platforms would preserve waterfront views	• Could use sleek and modern looking vehicle • Curb side bus stops could blend in with surroundings	• Could use sleek and modern looking coaches • Curb side bus stops could blend in with surroundings
4. Traffic Impact	• Operate in the inside lane • In-lane stops have intermittent but not significant effects on traffic • Passenger load time would be approximately 30-40 seconds.	• Operate in the inside lane • In-lane stops have intermittent but not significant effects on traffic • Passenger load time would be approximately 20-30 seconds.	• Operate in the inside lane • In-lane stops have intermittent but not significant effects on traffic • Passenger load time would be approximately 10-15 seconds	• Vehicles will operate primarily in outside lane • In-lane stops have intermittent but not significant effects on traffic • Passenger load time would be approximately 30-40 seconds	• Vehicles will operate primarily in outside lane • In-lane stops have intermittent but not significant effects on traffic • Passenger load time would be approximately 15-20 seconds
5. Utility Conflicts	• Major utility corridor under tracks • Possible transit service disruption for utility repairs		• Major utility corridor under tracks • Possible transit service disruption for utility repairs	• Minimal conflicts with utilities	

COST (4.3)

1. Operations and Maintenance Costs	• Two operators required per vehicle, additional $250,000/year in labor costs compared to option B • Total: $3.5 million/year	• One operator required • Total: $3.3 million/year	• Annual operations and maintenance costs approximately $3.3 million	• Mini-bus could be operated by non-profit • Total: $1.5 - 3.1 million/year depending on operator	• Larger coach likely operated by transit agency • Total: $3.1 million/year
2. Capital Costs (vehicles, power supply, stations)	• 5 streetcars at approximately $1.4 million total • High capital investment for power supply, stations, and new trackage (approximately $16.7 million) • New maintenance facility required, approximately $17 million to $23 million • Total: $35 - 41 million	• 5 streetcars at approximately $14.8 million total • High capital investment for power supply, stations, and new trackage (approximately $16.7 million) • New maintenance facility required, approximately $17 million to $23 million • Total: $49 - $55 million	• 3 streetcars at approximately $11.3 million total • High capital investment for power supply, stations, and new trackage (approximately $17.5 million) • Need additional storage at or near Charles Street Base, approximately $3 to $10 million • Total: $32 - $39 million	• 6 vehicles at approximately $4.2 million total • 2 charging stations at approximately $100,000 • Bus stops at approximately $1.7 million • Total: $6 million	• 6 vehicles at approximately $5.4 million total • 2 charging stations at approximately $100,000 • Bus stops at approximately $1.7 million • Total: $7 million

KEY TO RANKING

LOWER PERFORMING — HIGHER PERFORMING