

Inter-urban Family Bicycle Safety East/West route

Portland State University
Traffic & Transportation Class
by
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- The problem I would like to solve is the safety of bicycle travel between neighborhoods in Portland for a family of cyclist for routine travel.
- My solution is to extend the work done by the department of transportation developing bicycle boulevards.
 - define bike boulevard design guidelines by street speed and volume characteristics
 - walk through a scenario of travel to illustrate concepts on a map and with photographs.
 - apply and extend bike boulevard ideas to the Klickitat Mall and utilize the mall as a illustration of what might happen without further guidelines
 - define types of users and goals for the specific user groups

Boulevard Street Design based on speed of concurrent traffic

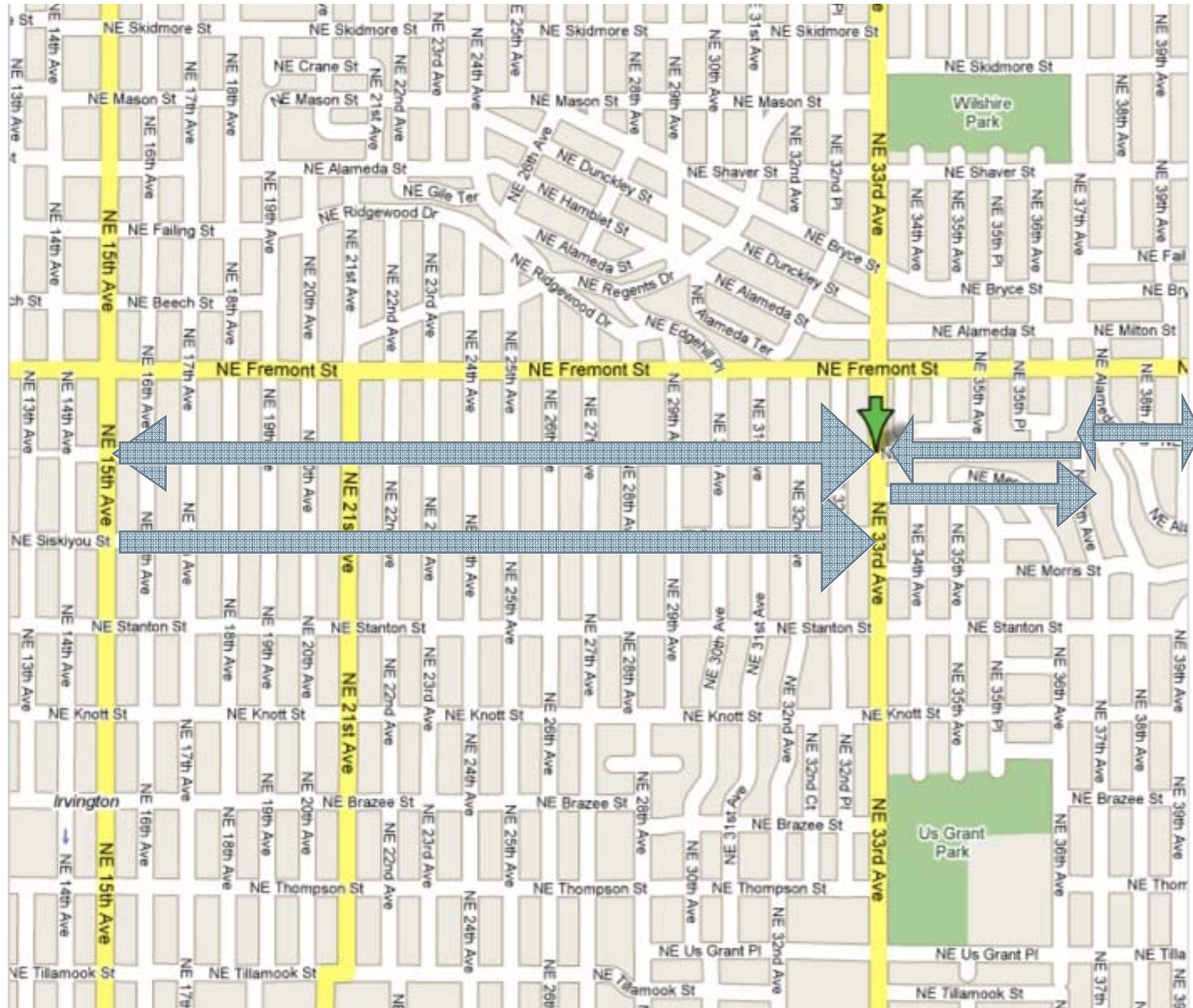
- Neighborhood residential Bike Boulevard: little to no through traffic, local, emergency, maintenance access only.
- Commuter arterial Bike Boulevard: Maximum vehicular speed of 25MPH, designated lanes with all major arterial crossings enhanced for safe traversal.
- Inter-urban arterial: Vehicular speed greater than 25MPH, all bicycles physically separated from vehicles with green space and curbs. Shared use for travel between major locations and the exercise enthusiast.
- Note Bicycle @ 30 x Pedestrian @ 1 == double injury but Car @ 30 x Bicycle at 10 == 60 % fatality!

Family outing to sports practice, game at PGE park, bookstore and dinner out at a restaurant

- Visit neighborhood park (NE/SE Portland)
- Travel to PGE park
- Stop by book store (Powell's, Borders, etc)
- Dinner out at a restaurant choose
(Pearl, NE Broadway, NE 23rd, East Side Esplanade)
- Commute home in the dark

Extending Klickitat Mall to a Inter-neighborhood Boulevard

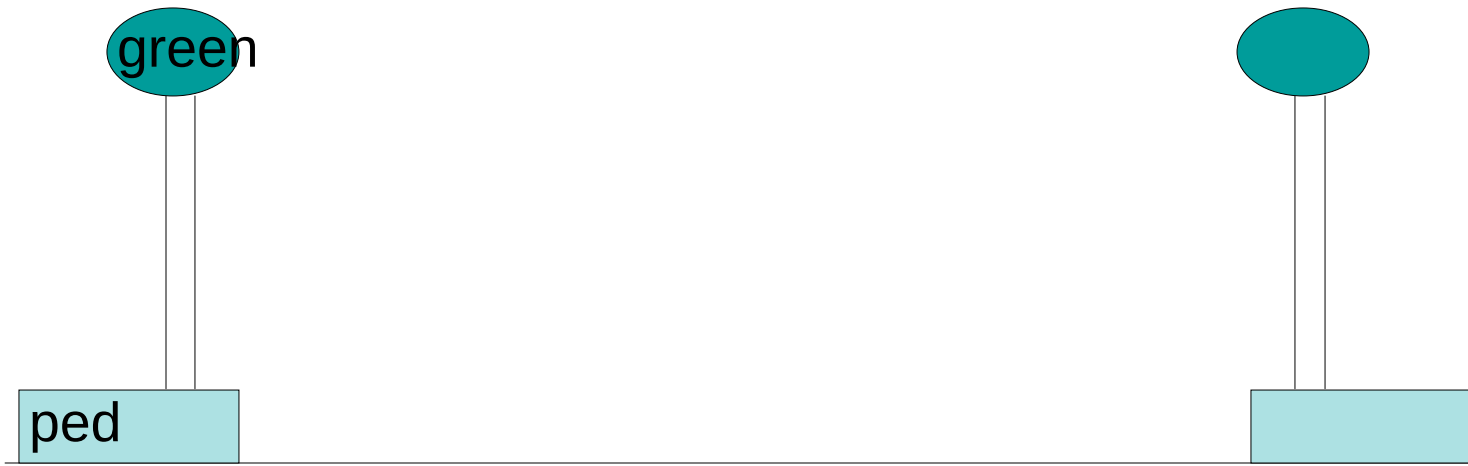
- create pedestrian and bicycle safe & friendly access route
- provide local access to property owners
- allow neighborhood design input and shared responsibility
- create guidelines and templates for development
- ensure emergency, utility and maintenance vehicle access
- have fun and be creative yet practical - functional art



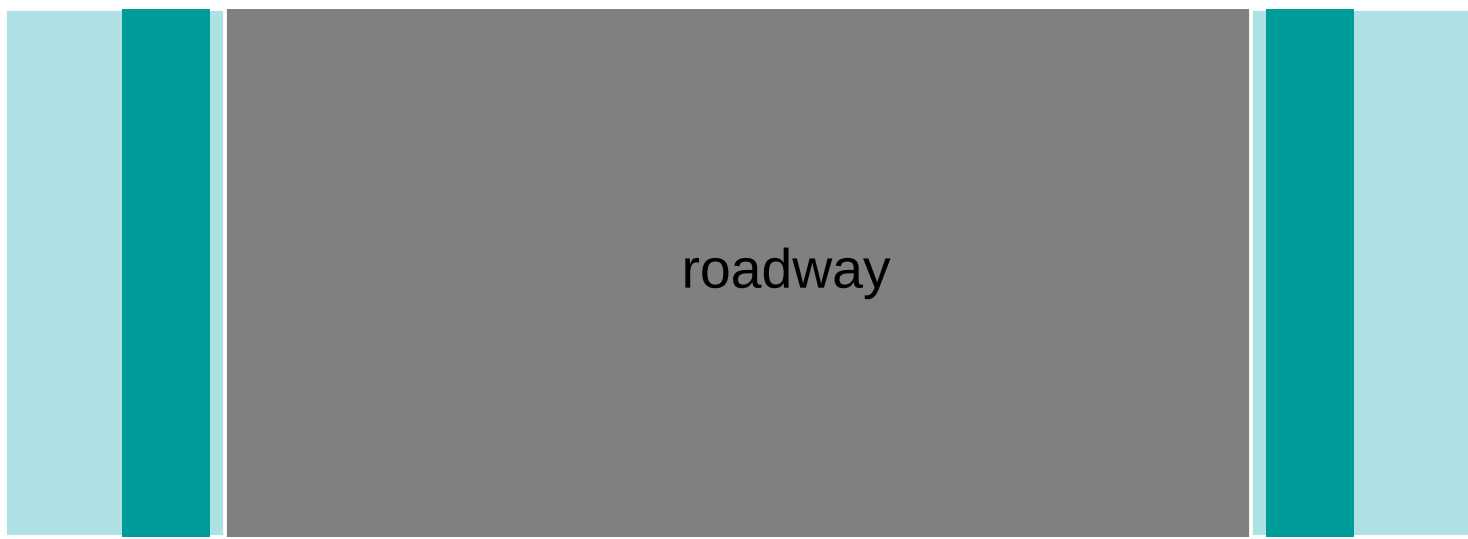
Provide Design Templates

- Outdoor sports playing field
(soccer, futsal, basketball, skateboard,...)
- Bird sanctuary
- Chess Checker board park
- Pet zone
- Community garden
- No treatment
- Custom design

end view



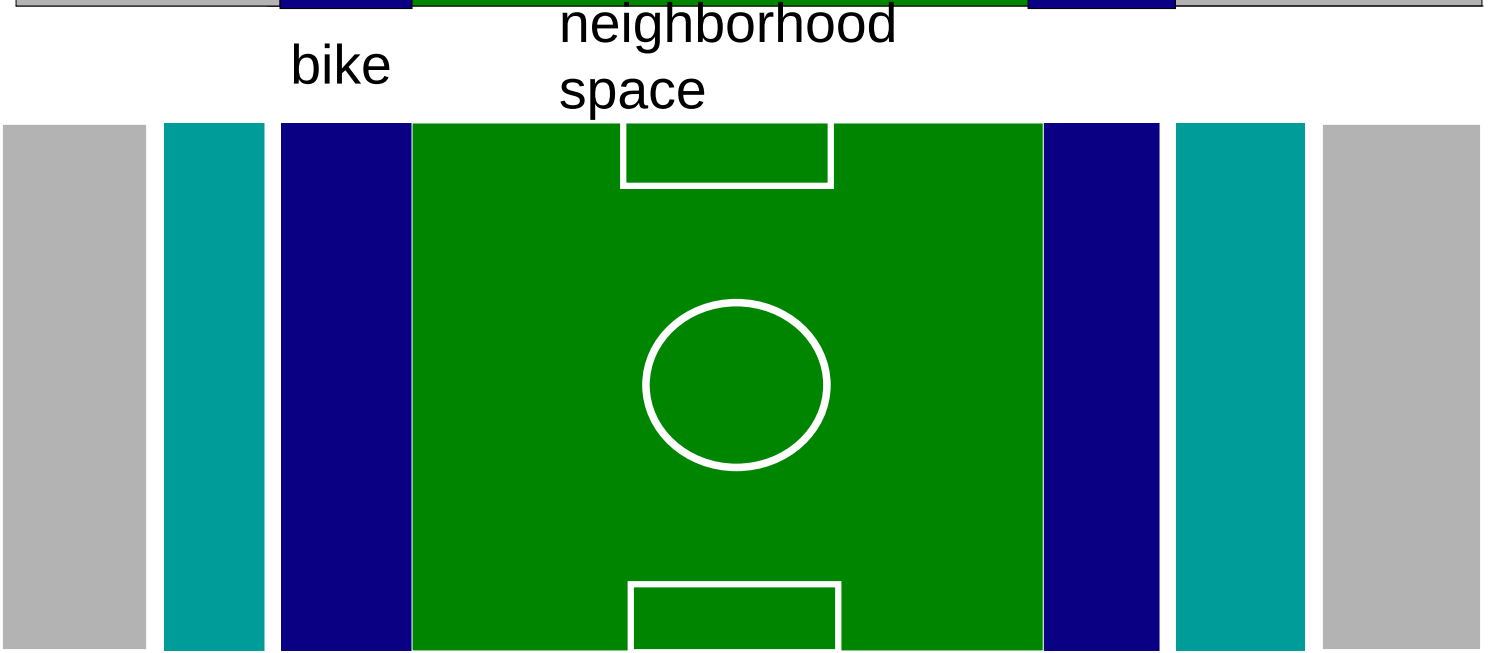
top view



end view

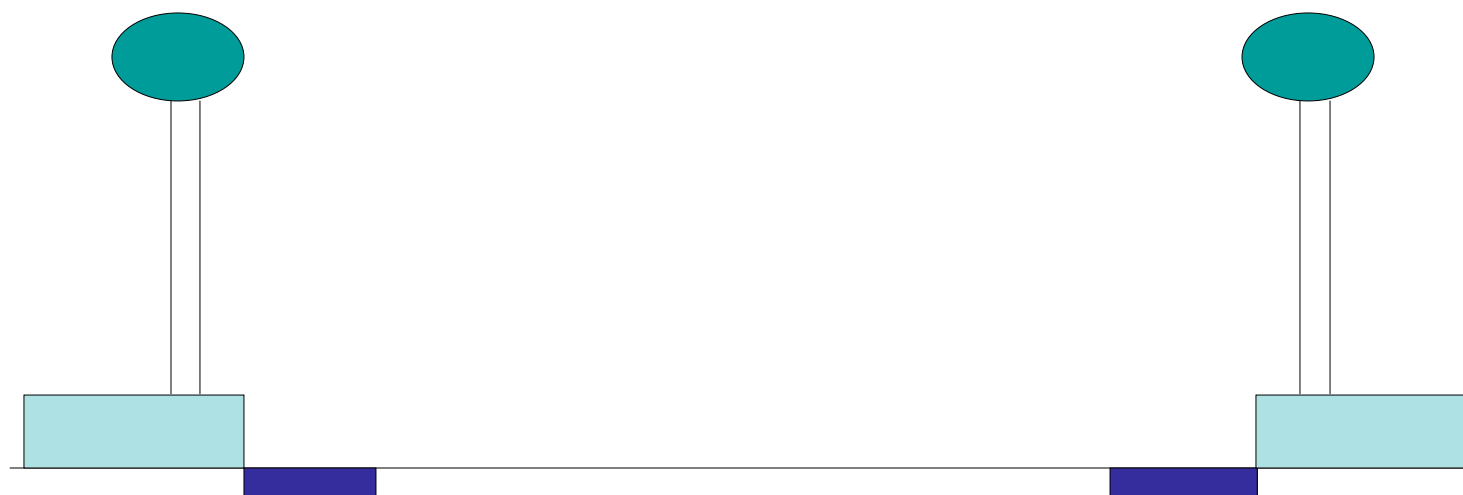


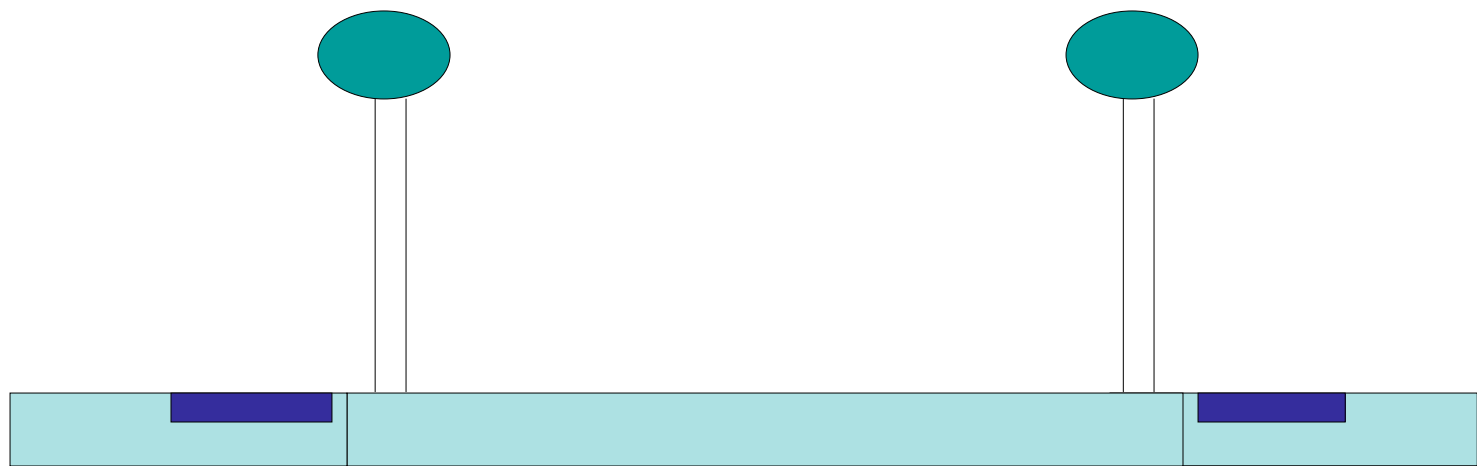
top view

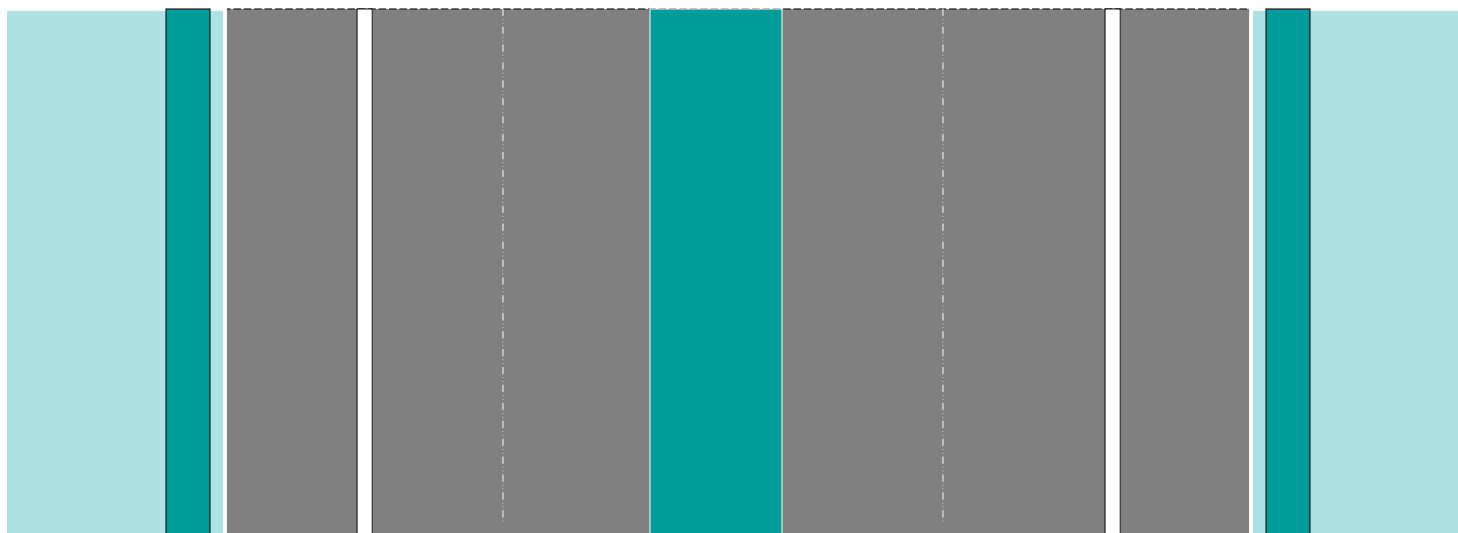
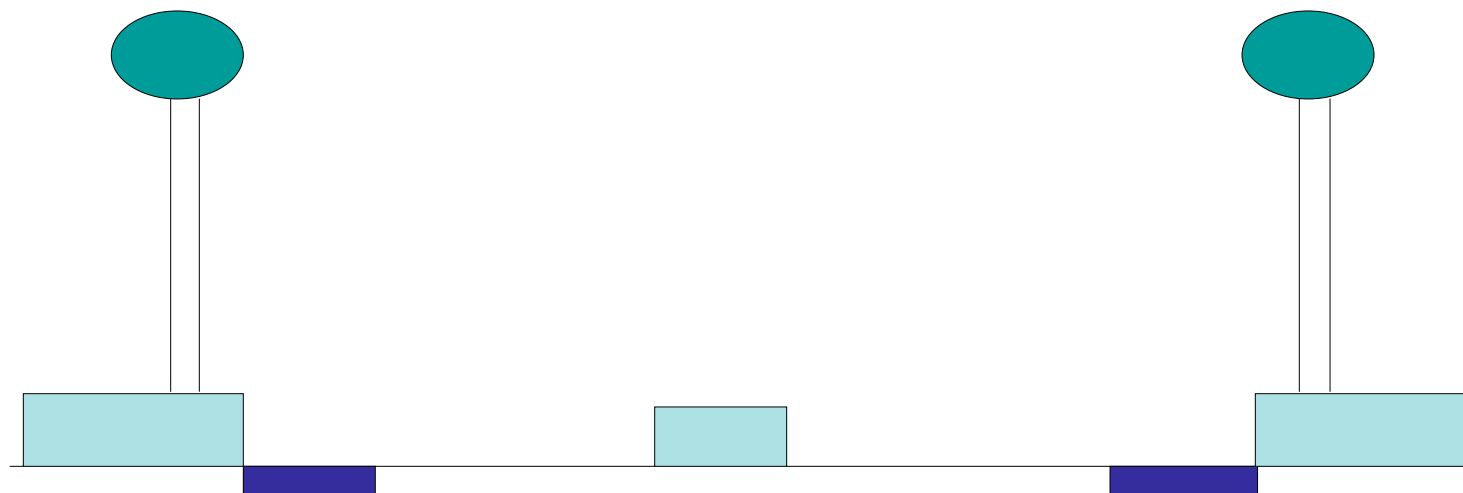


bike

neighborhood
space

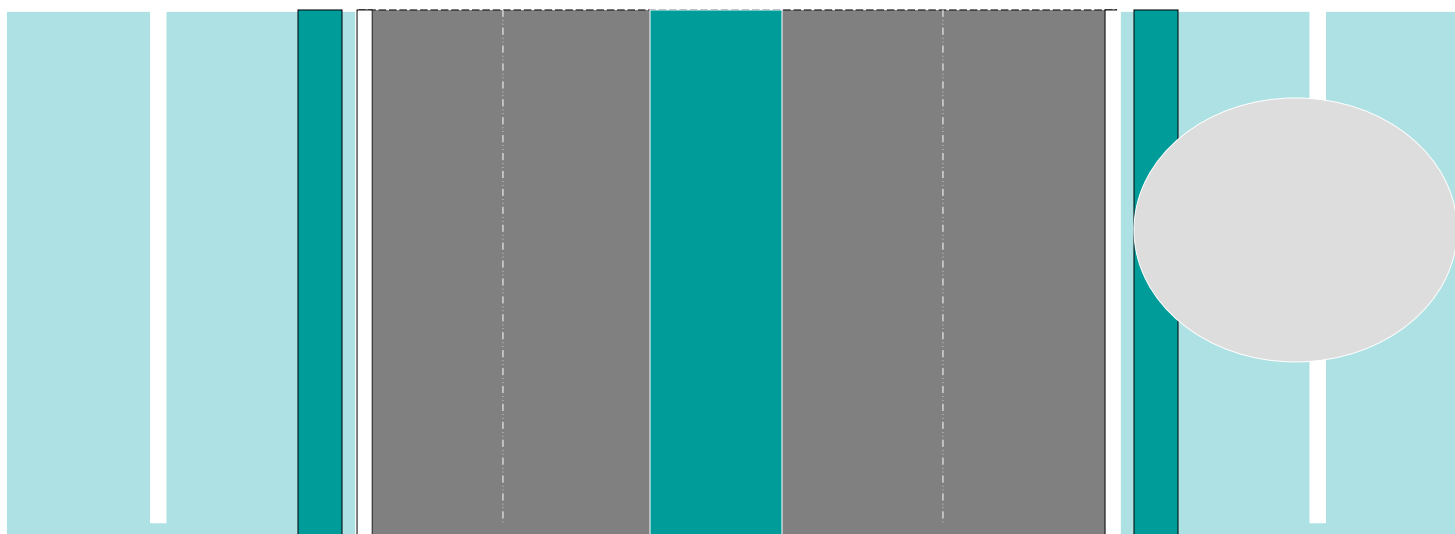
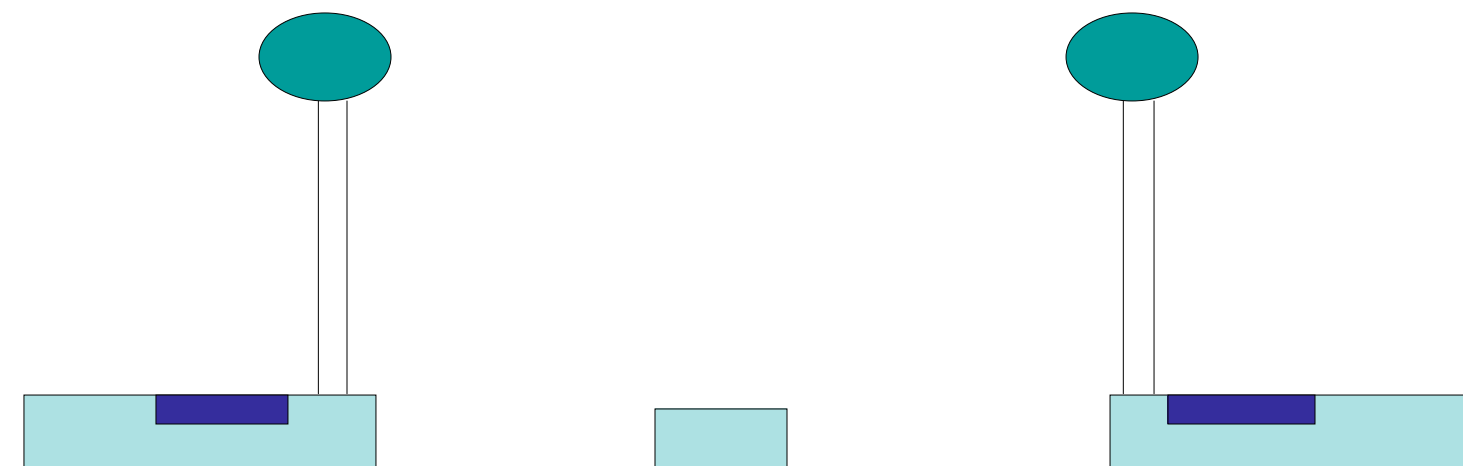


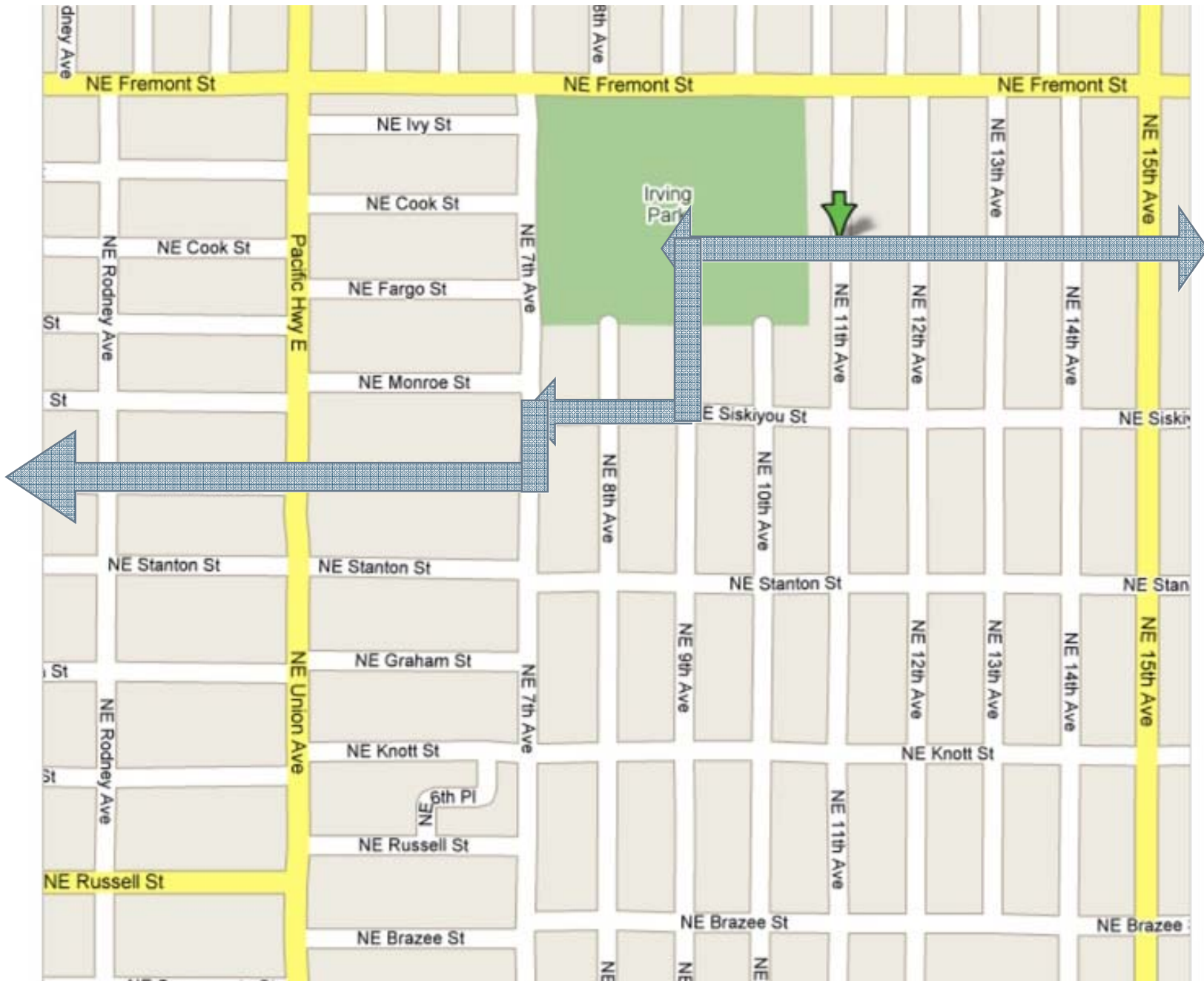












View West
NE 14th Ave &
NE Klickitat Mall



View South
NE 14th Ave &
NE Klickitat St



View East
NE Klickitat Mall & NE 14th Ave



View West
NE Klickitat Mall &
NE 13th Ave

wide viewing angle available left/right
foreground adequate pavement width but
unmarked for multi modal pedestrian/bicycle use
distant narrow up/down hill section with posts
which interferes with use of baby trailers

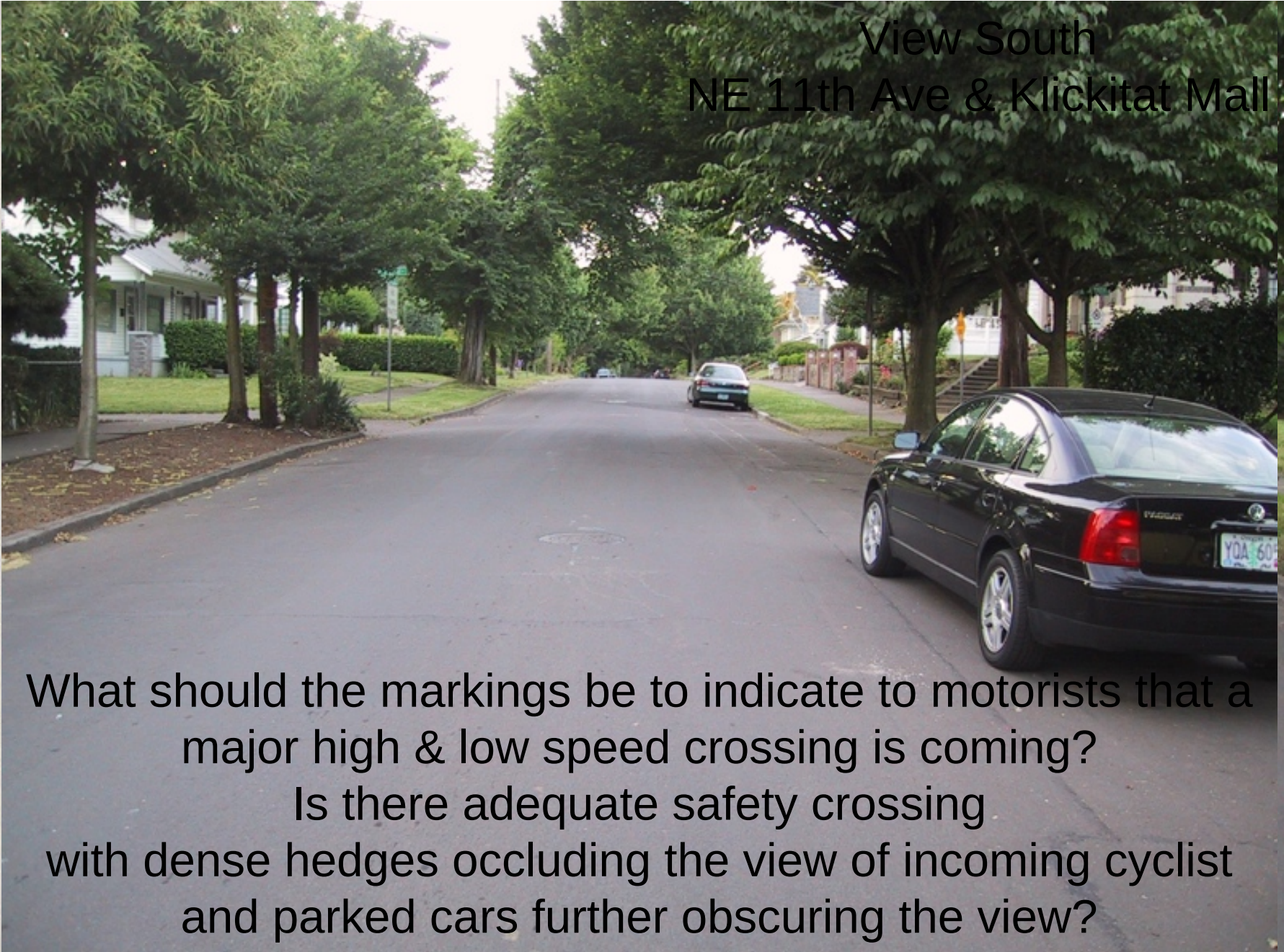
View North
NE 13th Ave & Klickitat Mall

Would zebra stripes and stop signs enhance child safety traversing Avenues on the way to the park?

View West
NE Klickitat Mall & NE 11th Ave



View North to observe on-coming traffic
obscured by foliage heading either East or West
on Klickitat Mall.



View South
NE 11th Ave & Klickitat Mall

What should the markings be to indicate to motorists that a major high & low speed crossing is coming?
Is there adequate safety crossing
with dense hedges occluding the view of incoming cyclist
and parked cars further obscuring the view?

View East
NE Klickitat Mall & NE 11th Ave



What distance from the intersection
should foliage be maintained to allow proper vision of
oncoming traffic for the cyclist and a view of the cyclist by
the motorist?

A photograph of a park path leading to a green field. The path is paved and curves to the right. A person is walking away from the camera on the path. To the left of the path is a large, dark-leaved tree. To the right is a tall, thin tree trunk. In the background, there is a green field, possibly a baseball field, with a fence and some buildings in the distance. The sky is overcast.

View East Irving Park at Crest of Hill

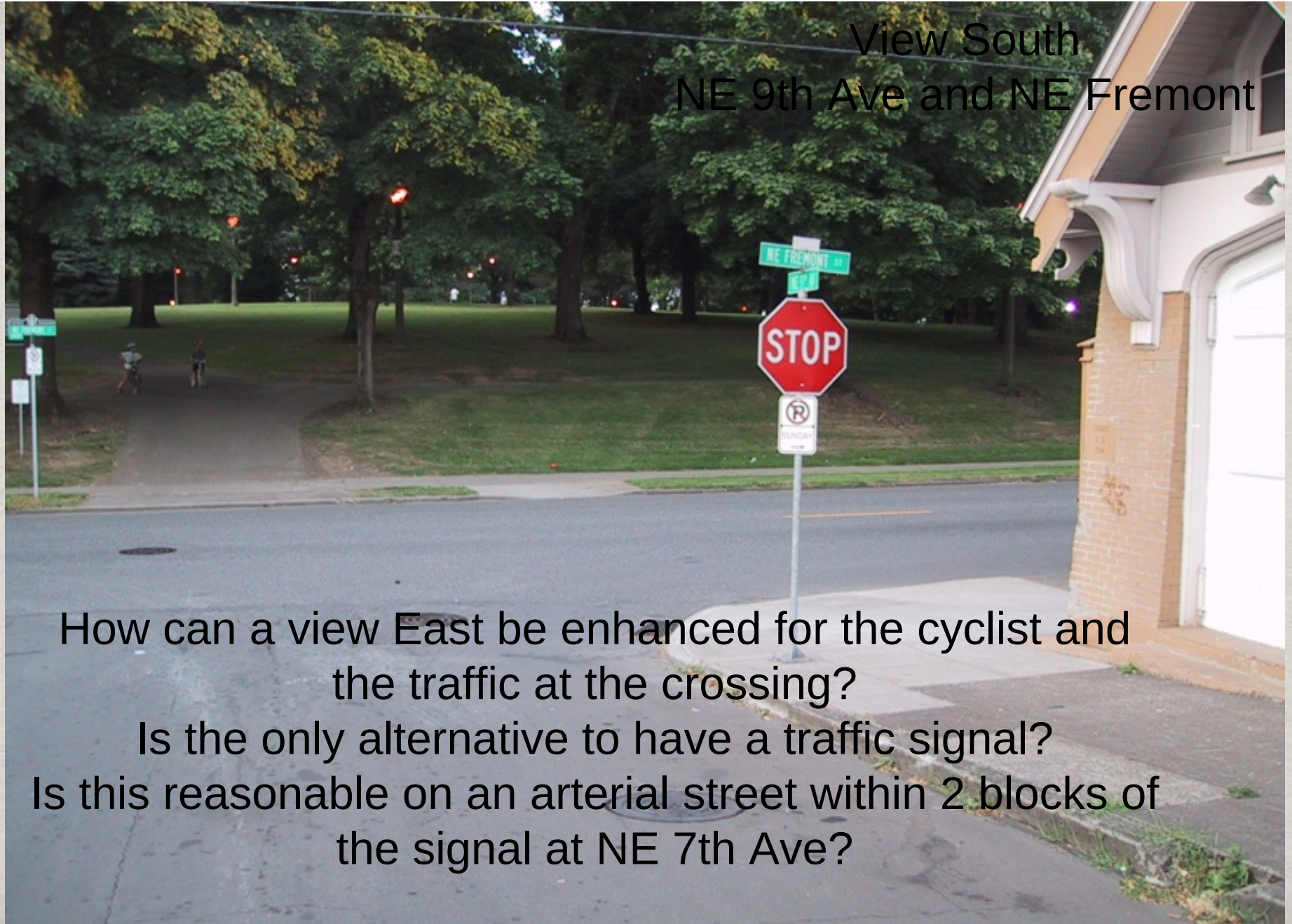
How do we create multi-modal paths in a park that allow for slow/medium/fast traffic, provide adequate night time safety for the commuter, yet preserve the available green space of the park by limiting concrete paths in the park?

View North
NE 9th Ave and NE Fremont St

How do we protect from bicycle brake failure on steep downhill transition into the major arterial of NE Fremont?



View South
NE 9th Ave and NE Fremont



How can a view East be enhanced for the cyclist and the traffic at the crossing?

Is the only alternative to have a traffic signal?

Is this reasonable on an arterial street within 2 blocks of the signal at NE 7th Ave?





View North @ traffic circle
NE 7th Ave & NE Morris St

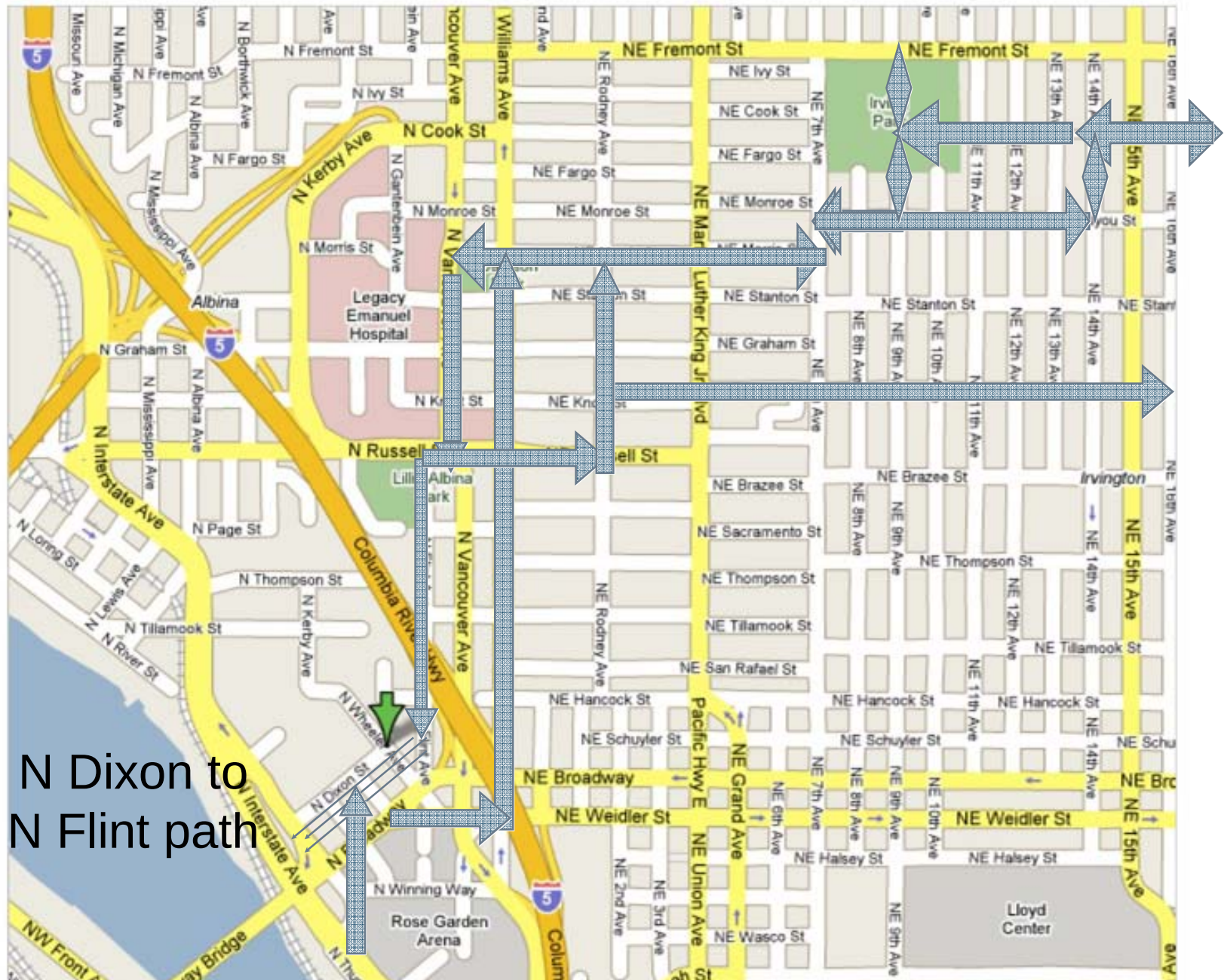


Vehicles forced to turn INTO cyclist by traffic circle
Vehicle driving in cyclist space on NE 7th Ave
Creates blind spot for North bound driver of cyclist
between NE Morris and NE Siskiyou
How can street offset transition safety be improved for
arterial crossings?



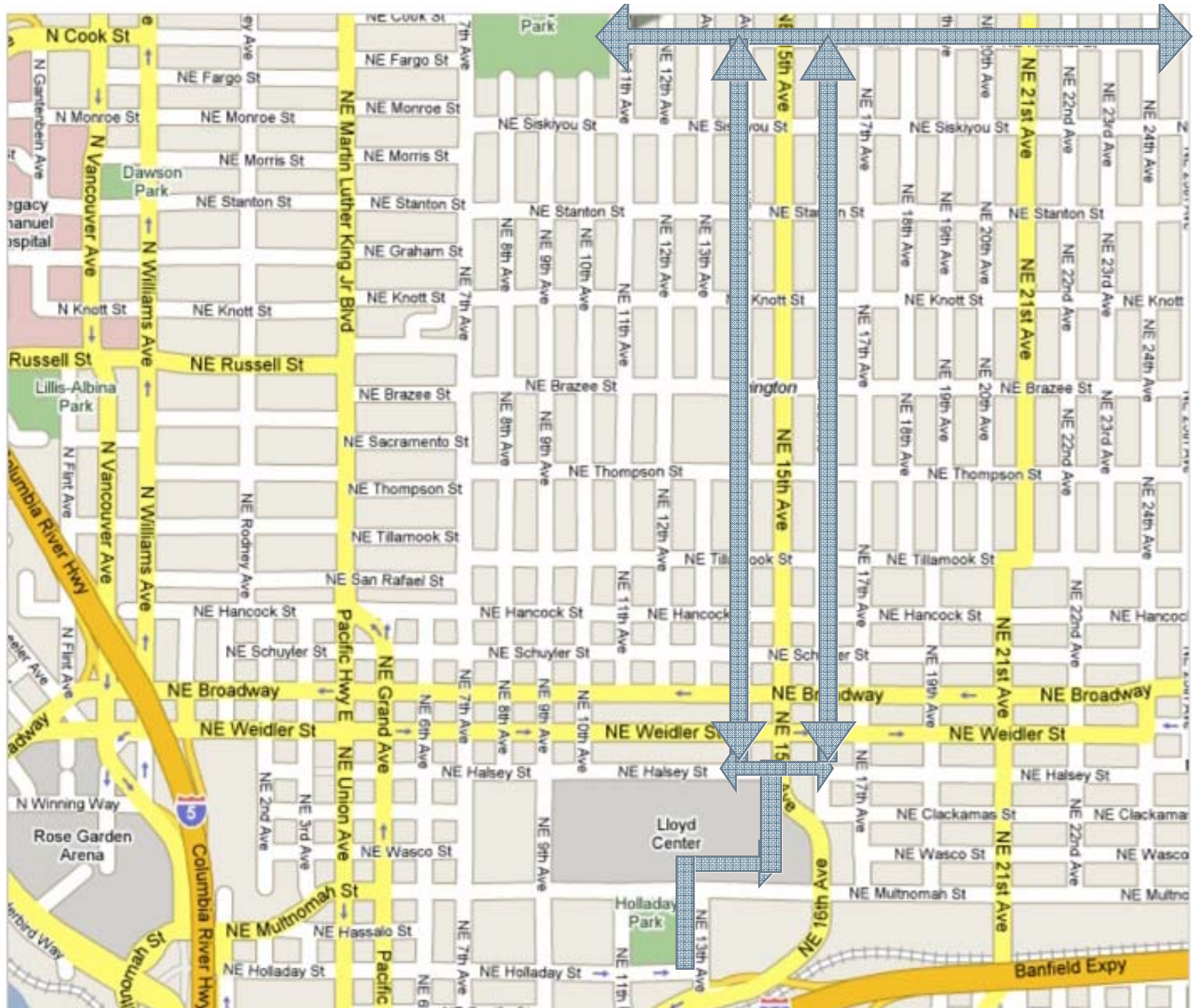
Mall to Boulevard transition

- Create visible crossing to alert vehicular drivers to high speed bicycle transverse
- elevate surface of boulevard when crossing streets (speed polygon)
- Ensure proper left/right viewing prior to crossing intersection
- Create foliage and lighting standards
- restrict parking to ensure visibility
- create adequate width and markings to ensure safe multi-modal use
- Reduce steep downhill transitions into arterial cross-traffic (9th & Fremont)
- check timing of lights to provide adequate travel time
- create guide stripes to transition across mismatched grids
- zebra stripe and stop sign non-arterial vehicular traffic crossing bike boulevard
- model the bike boulevard in NE 197th Ave & Reynolds Middle School! (except for the large rock bordering the sealed pavement.



N Dixon to
N Flint path





Recommendations

- Design competition for new green spaces
- Refine Boulevard designation to account for speed of concurrent traffic
- Classify target groups of people and develop goals and designs that meet each of their needs
- Provide safe inter-neighborhood routes that allow travel to frequent use spots
- End trip facilities in Building/Parking designs (bike door into avm facilities)

Expected user community

- Occasional recreational cyclist: expects high level of safety and general support, looking for dedicated paths. Goal: remove the hassle of requiring these users to put bicycles in the car and drive to the trail head by providing easy access from home to the safety of boulevards.
- Bicycle commuter: General daily use to and from work. Occasional weekend rider. Goal: increase use of bicycle for routine short trips.
- Family/group cycling: A family or small group out for a weekend ride for recreation. Goal: Provide incentive and safety to access routine family/group activities such as weekly after school athletic practice, commute to school, light shopping, visit to dentist.
- Athlete: Use multiple times per week but cycles at high speeds for long distances and requires uninterrupted flow. Goal: Eliminate drive from home to the start of the training loop. Offer multiple routes and designated mile markers to track distance, time, speed. Occasional speed checks and electronic bonuses for frequent use.
- Messenger: Daily occupation depends on efficient safe use of bicycle for primary employment: Goal: provide safe and efficient multi-modal access to key business locations.

Organizational support

- Bicycle service/maintenance
- Bicycle store
- manufacturer
- Bicycle support: coffee shop flat repair kiosks,
- end of trip parking facilities
- building codes with gym access showers & lockers o-located with parking

- Thank you
- The many employees of the city for what they have created so far and the time they spent visiting us on Wednesday evenings
- The City of Portland for funding the course.
- Portland State University
- The Bicycle Advisory Committee
- my family for giving me some time :)