

TRANSPORTATION AND MOBILITY COMMISSION MEETING MINUTES

Vancouver City Hall – Aspen Room – 415 W. Sixth Street
PO Box 1995 – Vancouver, Washington 98668-1995
www.cityofvancouver.us

Jeananne Edwards • Connor Godsil • Matt Herman • Alexander Hubert • Leah Jackson •
Mike Paine • Mario Raia • Eduardo Ramos • Derya Ruggles • Ken Williams

March 1, 2022

Time: 4:00 – 7:39 p.m.

Location: Convened telephonically, no in person attendance

CALL TO ORDER AND ROLL CALL (00:20)

The March 1, 2022 meeting of the Transportation Mobility Commission was called to order at 4:05 p.m. by Vice Chair Mario Raia.

Present: Chair Eduardo Ramos (joined at 4:14 pm), Vice Chair Mario Raia, Commissioners Jeananne Edwards, Connor Godsil, Matt Hermen, Alexander Hubert, Leah Jackson, Mike Paine, Derya Ruggles (joined at 4:16 pm), and Ken Williams

ACTION ITEMS

ADOPTION OF MINUTES (01:16)

Motion by Commissioner Hubert, seconded by Commissioner Williams, and carried unanimously to approve the February minutes.

ROLL CALL VOTE:

Jeananne Edwards	Yes
Connor Godsil	Yes
Matt Hermen	Yes
Alexander Hubert	Yes
Leah Jackson	Yes
Mike Paine	Yes
Derya Ruggles	Absent at time of roll call, joined the meeting at 4:16 PM
Ken Williams	Yes
Mario Raia	Yes
Eduardo Ramos	Absent at time of roll call, joined the meeting at 4:14 PM

STAFF COMMUNICATIONS (04:55)

Rebecca Kennedy, Deputy Director of Community Development, provided administrative updates to the Commission. On February 28, 2022, City Council appointed an 11th member to the Transportation and Mobility Commission, Corey Grandstaff, who will fill the position for a Commission member with a disability or mobility challenge.

WORKSHOP ITEM (5:50)

Pavement Management Program (Ryan Miles, Public Works Street Operations Program Manager)

Rebecca Kennedy introduced the workshop on the Pavement Management Program. The presentation will provide an overview of the program and the finalized 2022 Pavement Management Program. The presentation will also present preliminary plans for the 2023 and 2024 Pavement Management Program for Commission consideration and feedback.

Ryan Miles presented an overview of the program, its guiding policies and goals, the status of the pavement network and conditions, pavement lifecycle, pavement treatments and selection criteria pavement work, and an overview of project timelines.

The bullets below summarize the Commissions questions and staff responses to the presentation:

- Equity consideration for project selection and decision making. Staff responded the Equity Index map is used with project maps to see how changes will affect areas of the City with high equity index scores. Staff noted this is an interim process that will change with the implementation of the TSP. Different project types of different impacts for system users. A sidewalk project would more directly affect the local users who live, work and travel through the area where the investments is made, whereas a project on an arterial street affects a broader base of users of the transportation network.
- Community input for the Pavement Program. Staff responded the Transportation and Mobility Commission is part of community input for plans for this program. Additionally, the transportation project pipeline includes policy documents such as the Transportation System Plan, the Capital Facilities Plan, subarea and district plans, and the Transportation Improvement Program, all of which are developed through processes that include community input and impact the prioritization of paving projects.
- Are most of the failed streets residential, and is there an effort to keep arterial streets well maintained? Staff responded that is true. There is a focus on keeping arterials from failing, as they serve multiple modes of transportation. More recently, with the additional resources provided by the Street Funding Strategy, the City has made an effort to reduce the number of failed residential streets while still maintaining arterials as well.
- When a street is rebuilt, is there a moratorium on construction on the new street? Staff responded that is correct, but there is a process to request approval to cut into newly built road to facilitate new construction.

Staff continued the presentation, covering the 2022 pavement projects, locations, and schedule. For the 2023 and 2024 program years, the presentation covered proposed project locations, including those slated for more in-depth planning processes to facilitate Complete Street upgrades. The 2025 Pavement Program is still under development but will include additional Complete Streets corridors and be informed by policy and project lists from the finalized Transportation System Plan update as well as input from the Commission.

The bullets below summarize the Commissions questions and staff responses to the presentation:

- On SE 15th Street, is there a possibility of adding cross walks to improve student safety. Staff responded they would review and see if there was time to add this to this year's program to improve the school walk routes, but noted that lighting is required for all new crosswalks and

there are budget limitations to the non-paving elements the paving program can absorb from a cost standpoint.

- The status of 18th Street from 134th to 162nd. Staff responded that project is tied in with a future capital project. There will likely be spot improvements in the interim.
- Any planned upgrades to Mill Plain. Staff responded there has been a lot of work done on Mill Plain in the last several years, with some planned preservation treatments in the future. The Mill Plain BRT is under construction and staff throughout the City have been involved in the planning process. The Highway 99 BRT planning phase starts this year, and the City will be involved in the planning process, including the Commission in 2023.

WORKSHOP ITEM (1:07:50)

Transportation System Plan (TSP) Draft Goal Framework (Jennifer Campos, Principal Transportation Planner; Stephanie Wright and Esther Needham, Nelson Nygaard)

Jennifer Campos introduced the workshop. The Commission provided feedback on TSP values in 2021. The draft goals, policies, and metrics are built from the values discussions. This is in preparation for presenting to City Council in early April.

Esther Needham provided an update on the TSP schedule, the draft goals framework guiding the plan, the various inputs for drafting goals, and the five overarching goals.

The bullets below summarize the Commissions discussion on goal 1 to improve safety and promote health, potential policies, and example metrics.

- The goals are too broad, and metrics are not specific enough. Would prefer the policies to be measurable in and of themselves.
- Some of the metrics are unclear and should make sure the metrics are having the intended consequences.

The bullets below summarize the Commissions discussion on goal 2 to maintain assets and invest strategically for economic vitality, potential policies, and example metrics.

- What kind of goals were not included and how were these goals selected? Staff noted they engaged with the community and TMC to determine transportation values. Those values were used to prioritize the goals. The goals will evolve throughout the process, and there is still a lot of work to do to finalize the goals. There wasn't a long list of goals to start with and then a process of elimination; instead, the goals were crafted to incorporate the feedback and input received to date and emphasize key themes from the values discussions.
- Doesn't include freight mobility to the Port. Staff responded that freight mobility is incorporated in goal 5.

The bullets below summarize the Commissions discussion on goal 3 to reduce the impact of our transportation system on the climate and natural environment, potential policies, and example metrics.

- The metric for light pollution should be changed to reduce the amount of light. Staff responded this metric is used in other communities. From the ground level, LEDs appear to be a similar amount of light, but the LED lights are directed more towards the ground, rather than towards the sky. Staff agreed the type of lighting needs are varied depending on if they are for pedestrians or vehicles.

- Support for battery powered vehicles rather than hybrid vehicles.
- Should focus on other modes of transportation other than just cars. Should promote the community to change so people want to walk rather than drive.
- Adding motorcycles as a travel option to help reduce congestion.
- More EV charging and consider who pays for charging and who profits.

The bullets below summarize the Commissions discussion on goal 4 to connect and strengthen our region and provide equitable access to local communities, potential policies, and example metrics.

- With the second policy, add “to improve quality of life in the neighborhood” so it doesn’t lead to gentrification, or for it to be viewed as support for gentrification.
- Equitable access to key destinations such as airports, schools, etc. from all areas of the City.
- Improve disability access and transportation options.

The bullets below summarize the Commissions discussion on goal 5 to expand mobility choices to improve efficiency and accessibility for people and goods, potential policies, and example metrics.

- What are financial incentives for transit or other micro-mobility services? Staff responded there are subsidy or incentive programs for low income residents. The goal is to have the highest number of qualified people enrolled in the program to maximize the effectiveness. Staff provided an example of the Commute Trip Reduction program which incentivizes employers to offer transit options for employees.
- Suggest adding improvements to connections of multi-modal transit, as typically if someone uses transit, they also bike or walk to the transit stop. Staff agreed that was a good point and added to the discussion notes.
- Does Vancouver have a plan for micro-mobility? Staff responded thus far, the City is looking at existing policies and regulations regarding micro-mobility. There has not yet been direction from City Council to study or implement a citywide micro-mobility program. Staff also noted they are looking for input from the community on this, and that it is included the TSP update. Staff intend to focus on how to ensure such a program is equitable and implementable.
- On micro-mobility such as scooters, the cost per trip is rather expensive. They work in more dense cities well, but could be harder to implement in Vancouver, where density is lower. The scooters can also get in the way of sidewalks and driveways. The lifespan of scooters is quite low, and they are not recyclable or repairable. An option for e-bikes might be a better fit for Vancouver.
- A program to subsidize bikes for low income residents. Staff responded there are non-profit organizations that provide that type of service and could include a goal to support community partners who provide that type of program.

COMMUNITY FORUM (02:09:36)

Glen Yung was present to provide comments on equity and safety. He encouraged conversation and data gathering on where people are injured and dying in the transportation system in all modes to find structural problems. Projects that address those problematic areas should be prioritized. Regarding the Capital Improvements Projects for the NW 32nd Avenue Extension, the Commission should consider equity impacts beyond transportation. Once implemented, the connection there will improve an area where there is an existing affordable housing and lower income communities, and there is a need to protect those who are there already.

Don Steinke was present to provide comments on the City's goals to reduce greenhouse gas emissions. He provided information on Washington State laws for sales by auto manufacturers for battery electric vehicles. He urged the Commission to evaluate all proposals through the lens of the City's climate goals, particularly regarding capital projects, and to balance the money spent on capital projects with money needed for transit and complete streets projects.

WORKSHOP ITEM (02:19:56)

Transportation Capital Improvement Projects (Ryan Lopossa, Public Works Streets & Transportation Manager)

Rebecca Kennedy introduced the workshop, noting these projects have been a City priority for a long time and are enshrined in policy directives. There are still some opportunities for Commission input on these projects.

Ryan Lopossa presented the five major capital projects, including SE 1st Street between 164th Avenue and 192nd Avenue, NE 137th Avenue between 49th Street and Fourth Plain Blvd., Jefferson Street and Kaufmann Avenue between Evergreen and Mill Plain, NE 18th Street from 97th Avenue to 107th Avenue, and NW 32nd Avenue from SR-501 to NW 78th Street.

The bullets below summarize the Commissions questions and staff responses to the presentation:

- What opportunities do we have for place-making in these project areas? Staff responded they are working to implement Council directives to make these facilities safer and more comfortable for people walking, biking, rolling and accessing transit in alignment with the City's Complete Streets Policy, but noted that these are also arterial corridors that carry large volumes of traffic as well as freight, so there is a need to balance safe mobility for all modes. The wider facilities and multi-use pathways help to make these areas more friendly to non-vehicle travel. Crossings are being treated differently now, to make it easier and safer for people to cross the street, such as roundabouts and flashing beacons. With stormwater facilities, they treat the water from the street before it infiltrates, and include vegetation elements, and using those facilities as a buffer between vehicles and people walking or biking as well as elements of traffic calming.
- The design for 49th Street includes a traffic circle for vehicles- how pedestrians will cross the street. Staff responded there will be pedestrian crossing using best practices for roundabout design, which are actually safer for vulnerable road users than signalized intersections, so they would not need to go out of route to cross the street.
- On Jefferson and Kaufmann and the multi-use path, a concern with bikes and pedestrians in the same facility and suggested swapping the bike and parking so there is more separation. Staff responded that can sometime be a challenge with mixed use paths, and that is typically addressed with striping to indicate where people should go. Staff also agreed with the suggestion for swapping the bike lane and parking as that has been done elsewhere successfully.
- Is 18th Street to be completed to 162nd by end of 2023? Staff responded the segment that is being worked on currently, between 97th Avenue and 107th Avenue will be constructed in 2025 and design of 18th Street between 136th and 162nd Avenue will start later in 2022 or early 2023, with construction a few years after that.

COMMISSION COMMUNICATION (03:12:16)

Chair Ramos thanked the Commissioners for their dedication to participating in the Commission and the process. He suggested watching the Community Advisory Group for the Interstate Bridge Replacement Project from February 24, 2022.

Commissioner Ruggles thanked the Chair for his guidance of the meeting and encouraging engagement from the Commissioners.

Commissioner Jackson encouraged the Commissioners to do further research on light pollution.

ADJOURNMENT 7:39 PM

Eduardo Ramos, Chair

Meetings of the Transportation Mobility Commission are electronically recorded on audio. The audio tapes are kept on file in the office of the City Clerk for a period of six years.



To request other formats, please contact: Julie Nischik | 360-487-7813 | TTY: 360-487-8602 |
Julie.Nischik@cityofvancouver.us

Fourth Plain Safety and Mobility Project

Project Update

VANCOUVER
CITY HALL



April 5, 2022

**Vancouver Transportation and
Mobility Commission**

Jennifer Campos, Principal Transportation
Planner (City of Vancouver)

Ryan Farncomb, Consultant Project
Manager (Parametrix)

Presentation Overview

The Fourth Plain project team leads will present:

- Quick recap of the purpose, schedule, and milestones
- Highlights from “lane reconfiguration” analysis
- Next steps

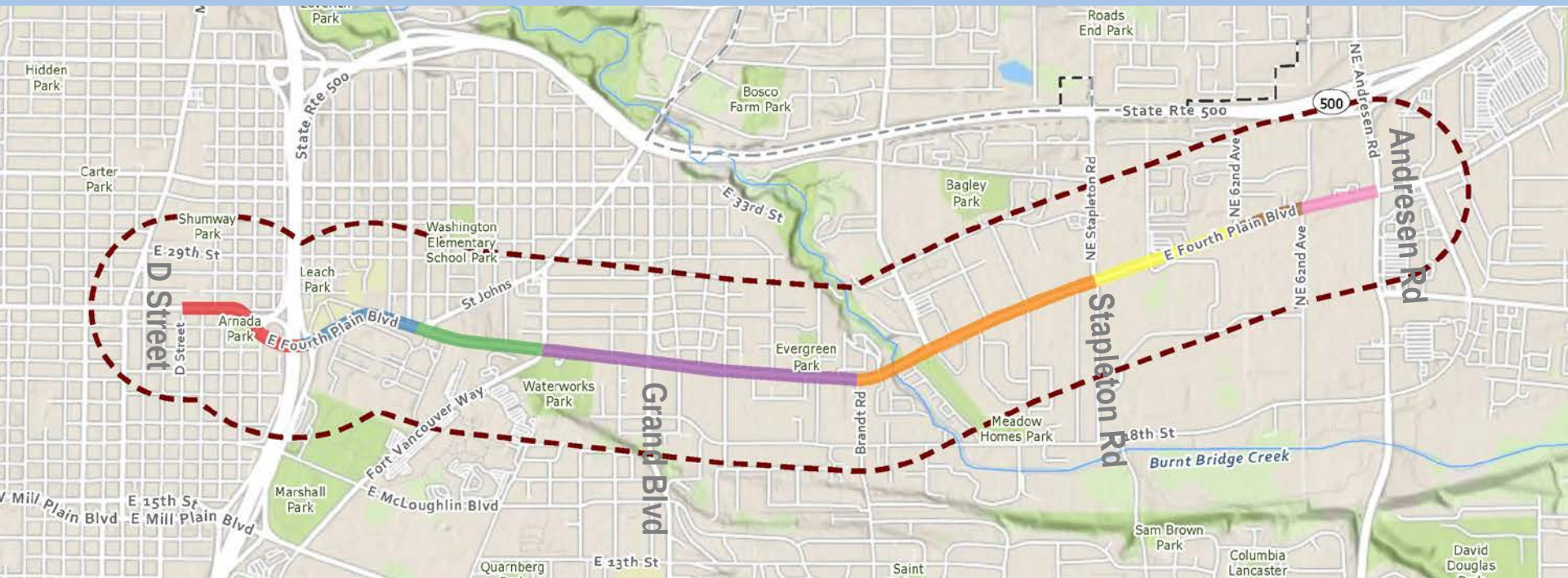


What is the project about?

The Fourth Plain Safety and Mobility Study is:

- Looking at ways to make Fourth Plain **safer for everyone** – including people who **drive, walk, ride a bike, use a mobility device, or ride the bus.**
- Considering **how to repurpose existing road space** to make the corridor safer for all
- Identifying **other potential safety improvements** outside of repurposing a travel lane

Study Area – D Street to NE Andresen Road



Colors are based on eight segments that were identified for baseline analysis.

Fourth Plain Safety and Mobility Study - 4

Project Need

- Past studies have flagged Fourth Plain Blvd for safety concerns.
- City's Transportation System Safety Analysis (2018) showed Fourth Plain (between Andresen and Grand) had the highest number of crashes per mile of all principal arterials in the City.
- City will repave Fourth Plain in 2023 – opportunity for City to implement safety improvements at the same time.
- Vine BRT has been very successful – build upon success by providing safety improvements for people walking, biking and taking transit.

How will the community be involved?

- Community is at the center of this effort!
- City will be talking with people who live, work, go to school, travel through, or recreate on the corridor.
- Study will reflect the people who use Fourth Plain everyday, what they want and need to travel safely.
- Team will be using many outreach tools to provide opportunities for input throughout the project.

What is a “lane reconfiguration?”

- Lane reconfiguration = repurposing roadway space for other users
- Typically, remove travel lane(s) for people driving and create new space for people walking, riding bikes, buses, and/or freight vehicles
- Research shows they are very effective at
 - Increasing safety for all roadway users:
20% - 50% crash reduction based on real-world studies
 - Decreasing speeds
 - Reducing conflict points
 - Creating comfortable space for other roadway users

What is a “lane reconfiguration?”

- Typically very cost effective compared to other types of treatments
- Have been implemented in cities across the US, including Vancouver
- Analysis needed to understand traffic impacts





- Crashes reduced 52%
- Speeds reduced 18%
- No traffic diversion

Previous Fourth Plain
lane reconfiguration
4 lanes >> 3 lanes



Monroe Street in Spokane, WA (2016)



Monroe Street Lane Reconfiguration in Spokane, WA (2020)

- 5 lanes >> 3 lanes
- Marked ped crossings
- On street parking
- Sidewalk improvements
- Street trees, Lighting
- Bus shelters
- 10% increase in corridor sales tax revenue year after

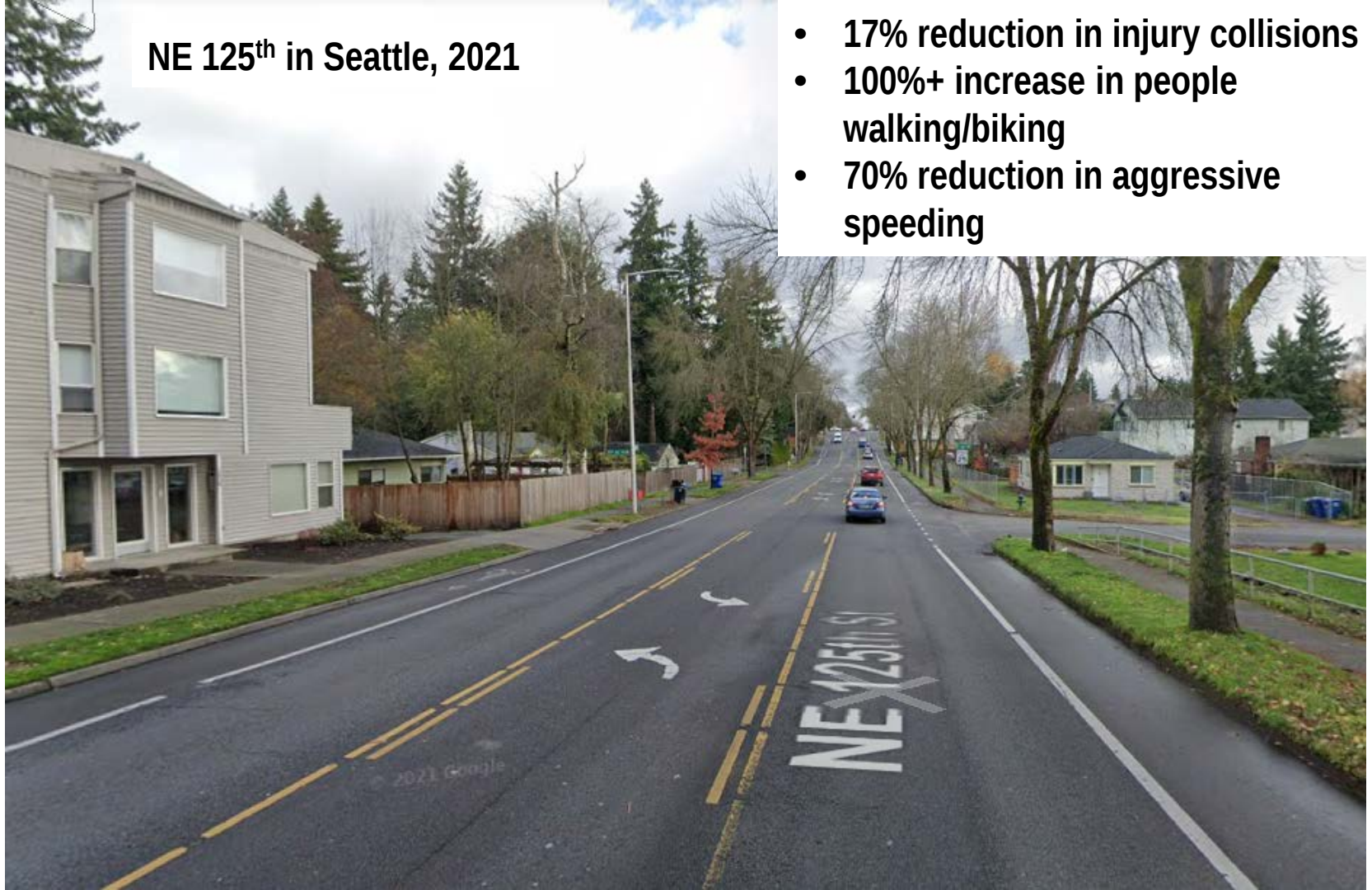


NE 125th in Seattle, 2008



NE 125th in Seattle, 2021

- 17% reduction in injury collisions
- 100%+ increase in people walking/biking
- 70% reduction in aggressive speeding



Jackson Street, Medford, OR - 2018



Jackson Street, Medford, OR - 2020



Lane Reconfiguration Analysis

- Our team applied traffic modeling tools to evaluate several lane reconfiguration ideas
- Answer the following questions:
 - What would traffic look like in 2040 if we repurposed a travel lane in each direction?
 - Would the changes still meet City standards for keeping traffic moving on Fourth Plain?
 - How does traffic with a travel lane repurposed compare to keeping Fourth Plain the same as it is today?

Lane Reconfiguration Analysis

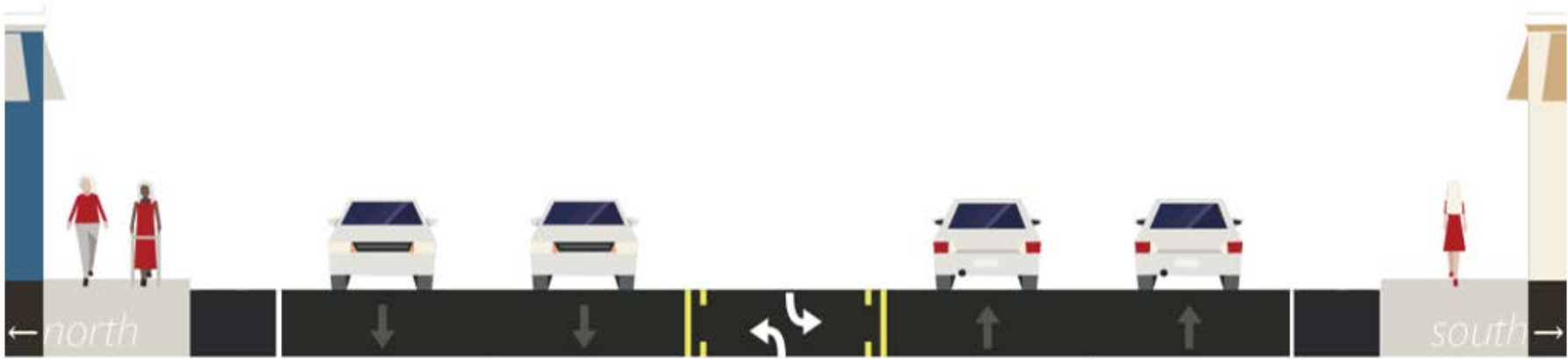
When a lane reconfiguration is implemented, the capacity of the corridor for people driving is partially reduced. People respond to this in one of several ways:

- Keep driving on Fourth Plain. Analysis shows about 75% of people would continue using the roadway during morning and evening rush hour.
- Change the route they drive on. For example, they may use SR-500 instead of Fourth Plain.

Lane Reconfiguration Analysis

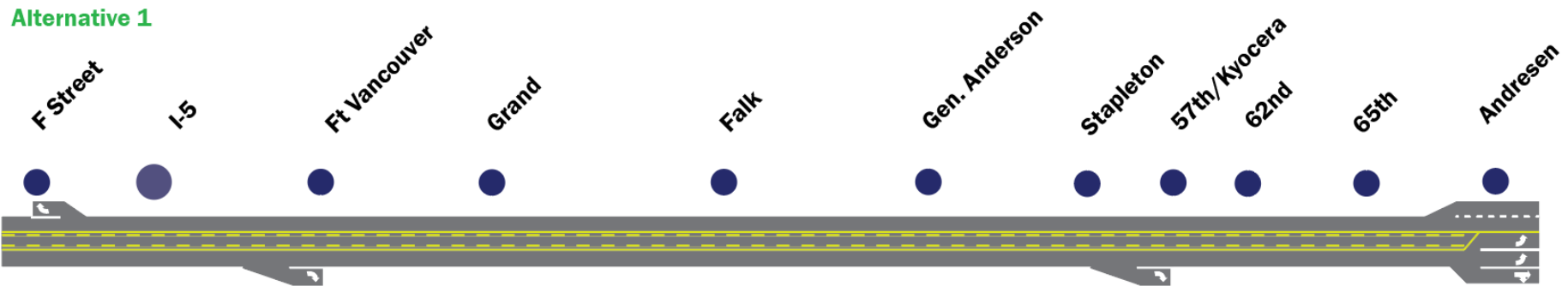
- Change the time of day they travel. For example, by making trips outside of the morning and afternoon rush hour.
- Change the way they travel – such as using the bus, walking, or riding a bike instead of driving.
- Change their destination. For example, they may go to a different grocery store.
- Choose not to make the trip at all (though this is the least likely).

Typical Conditions on Fourth Plain today: 5 lanes

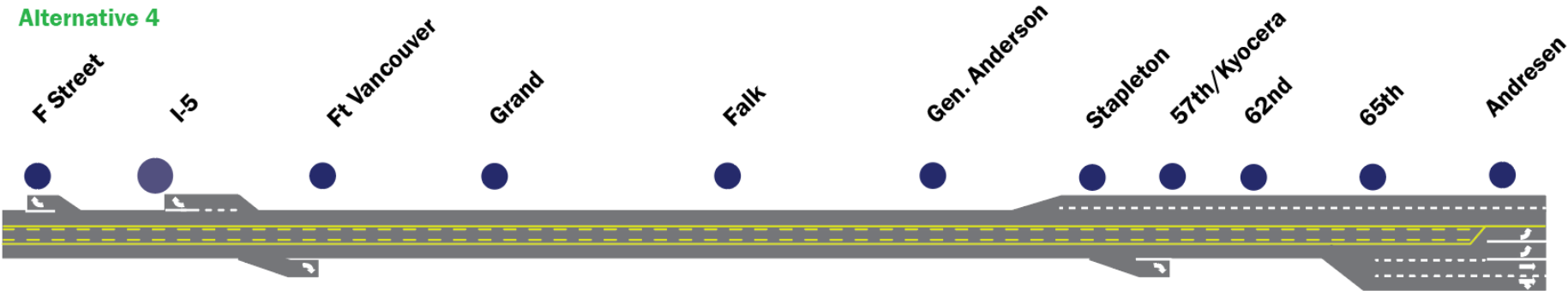


Lane Reconfiguration Alternatives: 3 lanes

Alternative 1



Alternative 4



Lane Reconfiguration Analysis

- Several different traffic measures:
 - Intersection Level of Service (LOS) – measures delay at intersections on A to F scale
 - Queuing – measures how long lines of traffic are at intersections
 - Travel speeds – measures how quickly people can drive through the corridor
 - Diversion – measures how many people would take different routes as a result of the lane reconfiguration

Lane Reconfiguration Analysis

A couple things to note:

- Models are never perfect. The team tested lower and higher traffic scenarios to understand the range of likely outcomes.
- Real-world studies have found that traffic impacts from road diets tend to go away as time goes on
 - People use new routes, different modes, travel at different times of day....
- We are still working to understand potential impacts from the Interstate Bridge Replacement project
 - In general, impacts would be limited to westernmost end of corridor

Traffic Results Summary

	Existing Conditions	2040 “No Build”	2040 Alternative 1	2040 Alternative 4
Description	The corridor today without any changes	Future traffic performance assuming the corridor stays the same as today	Repurpose one travel lane each direction from F Street to Andresen	Repurpose one travel lane EASTBOUND between F Street and 65 th and WESTBOUND between Stapleton and F Street
Intersection Delay	Performs acceptably for the most part (most intersections between LOS “A” and “D”)	Performs acceptably and fairly similar to Existing Conditions	Lots of delay at the I-5 northbound on-ramp, as well as a couple of unsignalized side streets	Very similar to “No Build”

	Existing Conditions	2040 “No Build”	2040 Alternative 1	2040 Alternative 4
Corridor average speed during MORNING peak hour (7:30 – 8:30 AM)	EB: 24 MPH WB: 24 MPH	EB: 23 MPH WB: 23 MPH	EB: 23 MPH WB: 22 MPH	EB: 24 MPH WB: 23 MPH
Corridor average speed during EVENING peak hour (4:00 – 5:00 PM)	EB: 23 MPH WB: 22 MPH	EB: 22 MPH WB: 21 MPH	EB: 17 MPH WB: 16 MPH	EB: 22 MPH WB: 21 MPH
Average time to drive through the corridor in the EVENING peak hour	EB: ~9 minutes WB: ~9.5 minutes	EB: ~9.5 minutes WB: ~9.5 minutes	EB: ~12 minutes WB: ~13 minutes	EB: ~9.5 minutes WB: ~9.5 minutes

Lane Reconfiguration Analysis

Conclusions:

- Traffic is likely to perform well with a lane reconfiguration
- Congestion would meet City standards for how fast people should be able to drive through the corridor
- Congestion impacts would be relative minor
- Diversion would be relatively minor and can be mitigated if it occurs

Before we go on:

Any questions or comments?

New Uses for Lane Space

How should the City use extra roadway space on Fourth Plain to best serve everyone who uses Fourth Plain?

Could be allocated to support:

- **Transit and people riding the bus**
- **On-street parking spaces**
- **People walking or who use mobility devices**
- **People riding bikes**

Tradeoffs and considerations for each!

Note: The City will be talking with the corridor community later this spring and summer to hear what the community's goals are and if a lane reconfiguration is the right change.

Lane Reconfiguration Ideas - *Transit*

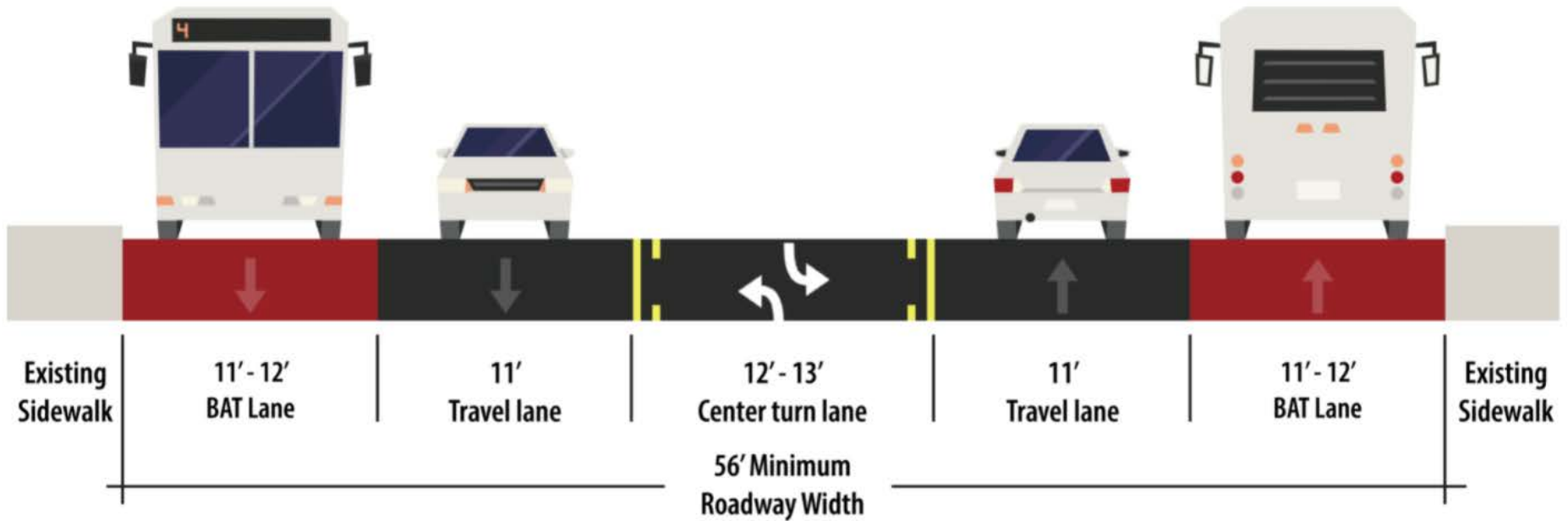
Transit and people riding the bus

- Many options for providing “transit priority” for buses
 - Exclusive lanes used only by buses
 - Lanes that can be used only by buses and cars turning right into driveways or roads (“business access and transit (BAT) lanes”)
 - Lanes used exclusively by buses only during morning and evening rush hours (open to all vehicles the rest of the day – called “pro time” lanes)

Considerations

- Makes the bus faster (and more attractive for riders), improves safety, calms traffic

Business Access and Transit Lane



Lane Reconfiguration Ideas - *Biking*

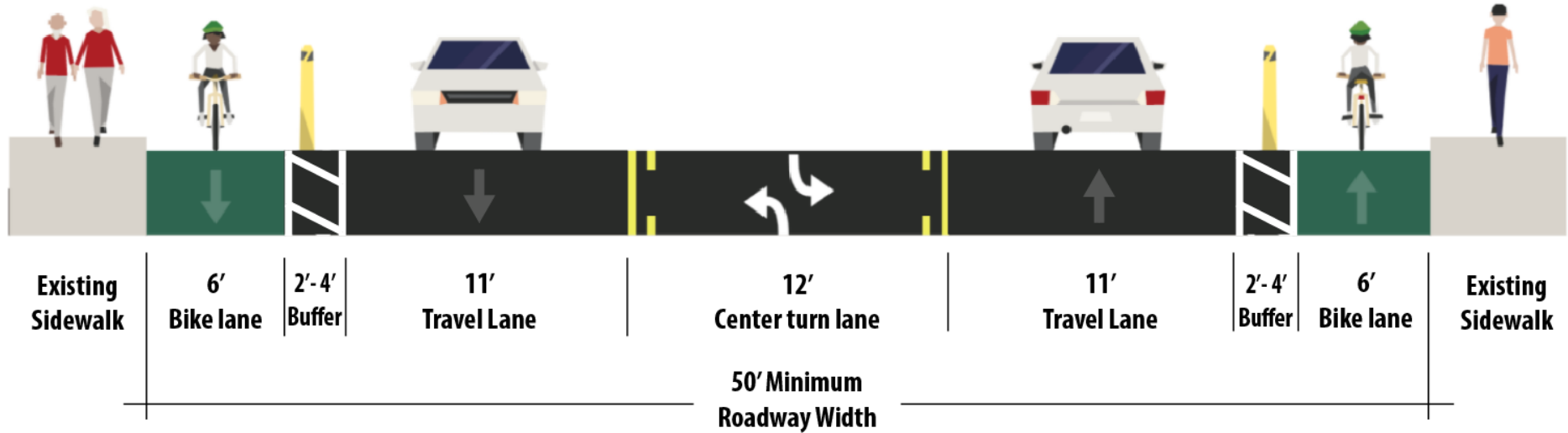
People riding bikes

- Bike lanes
- Buffered bike lanes (“buffered” by extra wide striping or other treatments)
- Transit and bike-only lanes

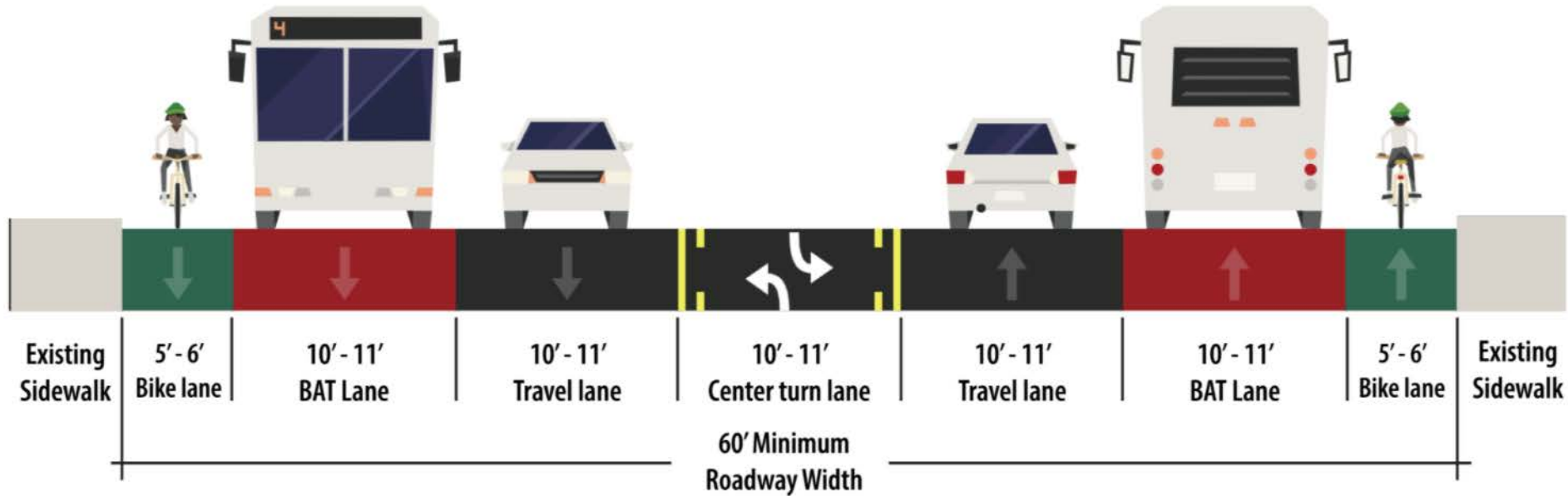
Considerations

- Though there are bike lanes in some places today, continuous lanes would provide an improvement
- However, concerns about large number of driveways, traffic volumes
- Would help calm traffic

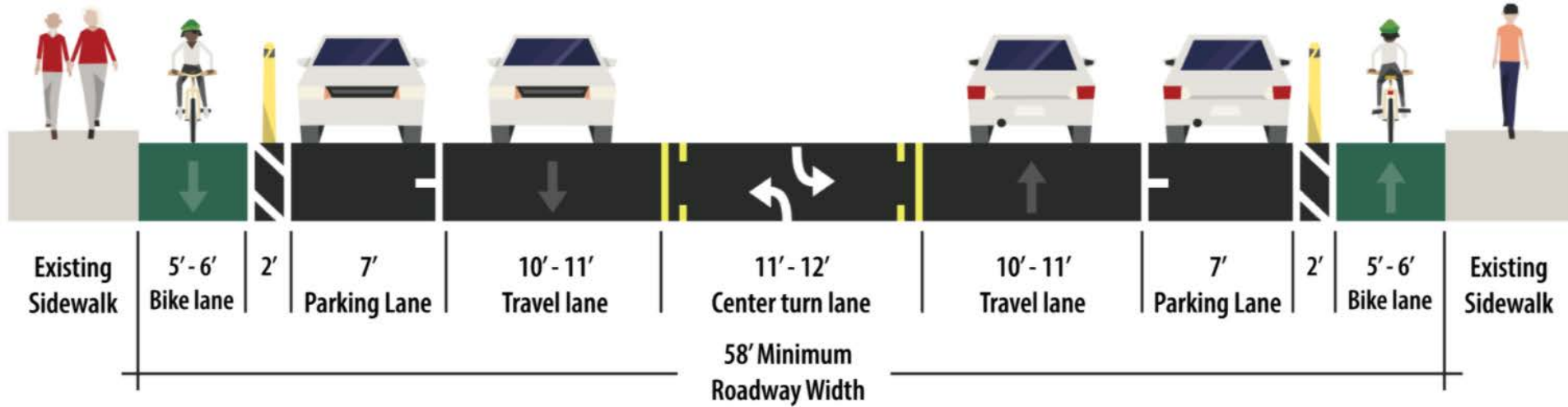
Bike Lanes Protected with Physical Barrier



Bike Lanes and Transit Lanes



Protected Bike Lanes with On-Street Parking



Discussion

What do you think of these different ideas?

What other ideas do you have?

What else would you want to know?

Note: The City will be talking with the corridor community later this spring and summer to hear what the community's goals are and if a lane reconfiguration is the right change.

Next Steps

There's a lot going on in the corridor!

- 2024 repaving and potential lane reconfiguration (this project)
- Transportation System Plan – Vancouver Moves
- 2023/24 Ft. Vancouver Way repaving and potential lane reconfiguration
- Interstate Bridge Replacement project
- Federal American Rescue Plan Act (ARPA) funding for Fourth Plain

How will this impact the Fourth Plain Safety and Mobility Project?

- The City is adapting to maximize coordination between all these projects
- May mean that timelines shift somewhat – City and project team will keep TMC informed

Next Steps

- Community engagement – stay tuned for details
- Document lane reconfiguration ideas
- Document other potential safety improvement concepts
- Develop a community-driven evaluation framework to guide decision-making
- Evaluate lane reconfiguration ideas
- Select preferred option(s) for moving forward

Questions and Discussion

- Jennifer Campos, Principal Transportation Planner
- Jennifer.Campos@cityofvancouver.us
- <https://www.cityofvancouver.us/cdd/page/fourth-plain-safety-and-mobility-project>

MEMORANDUM

DATE: March 21, 2022
TO: Transportation and Mobility Commission (TMC)
FROM: Ryan Farncomb & Nadine Appenbrink, Parametrix
SUBJECT: Fourth Plain Safety and Mobility Project Update – Reconfiguration Alternatives
CC: Jennifer Campos, Principal Planner; Rebecca Kennedy, Deputy Director; Community Development Department, City of Vancouver

Introduction

The Fourth Plain Safety and Mobility Project is looking at ways to make Fourth Plain between Main Street and NE Andresen Road safer for everyone, including for people who drive, walk, ride a bike, use a mobility device, or ride the bus. This project will look at how to use the existing road space to make this corridor safer, which could include changing the number of lanes for driving to make more room for people walking, biking, or using the bus.

Since the last time we discussed this project with the TMC in December of 2021, the project team has been testing different “lane reconfiguration” ideas to understand how changing the number of driving lanes might affect congestion and safety in the corridor.

What is a “lane reconfiguration”?

A lane reconfiguration re-allocates roadway space, usually by removing travel lanes for cars and repurposing the lane space for people walking, riding bikes, buses, or trucks. They have been used by many cities including Vancouver to create more space for other roadway users. They are proven through research to increase safety for everyone who uses the road by slowing traffic and reducing conflict points between cars and other road users. Lane reconfigurations are very cost-effective compared to other actions that address safety and mobility.

Overview of the Reconfiguration Analysis

The team is using modeling tools to evaluate how traffic might change on Fourth Plain, as well as how traffic might change on nearby roads and highways if a travel lane was repurposed along a portion or all of Fourth Plain between F Street and Andresen Road. Overall, our modeling shows that a majority of drivers would continue driving on Fourth Plain in the same way they did before a travel lane was repurposed. However, there would be less overall driving in the corridor under the lane reconfiguration scenarios the team looked at. This is because people change their behavior in one of five ways when a travel lane is repurposed. They may:

- Change the route they drive on. For example, they may use SR-500 instead of Fourth Plain.
- Change the time of day they travel.
- Change the way they travel – such as using the bus or riding a bike instead of driving.
- Change their destination. For example, they may go to a different grocery store.
- Choose not to make the trip at all (although this is the least likely).

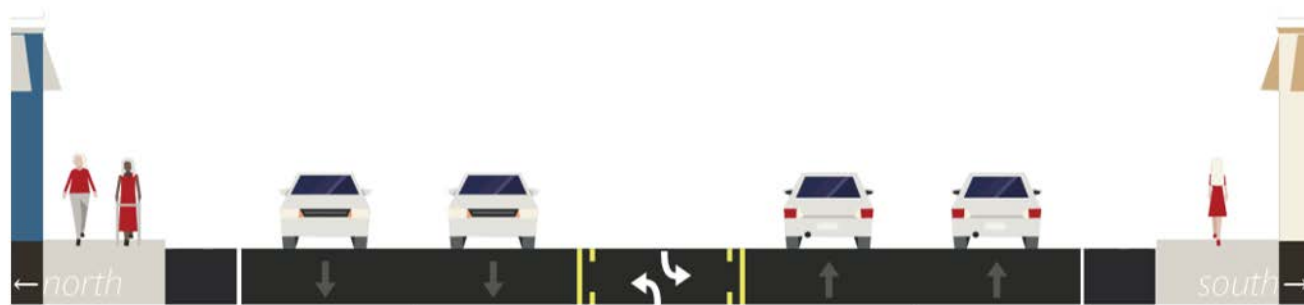
The project team looked at modeled traffic in the year 2040 to understand how traffic is likely to be if there are no roadway changes in the corridor between now and 2040 (called a “No Build” scenario) and compared that to traffic if a travel lane was repurposed, testing several different alternatives. The project team wanted to answer the following questions:

- What would traffic look like in 2040 if we repurposed a travel lane in both directions and if different extents were considered?
- Would the amount of traffic meet City standards for keeping drivers moving on Fourth Plain?
- How does traffic with a travel lane repurposed compare to keeping Fourth Plain the same as it is today?

The answers to these questions help us understand whether a lane reconfiguration would affect drivers in a major way. This information will also help us discuss lane reconfiguration tradeoffs with the public and stakeholders: whether potential impacts to drivers are worth the benefits of increased safety and mobility for all roadway users.

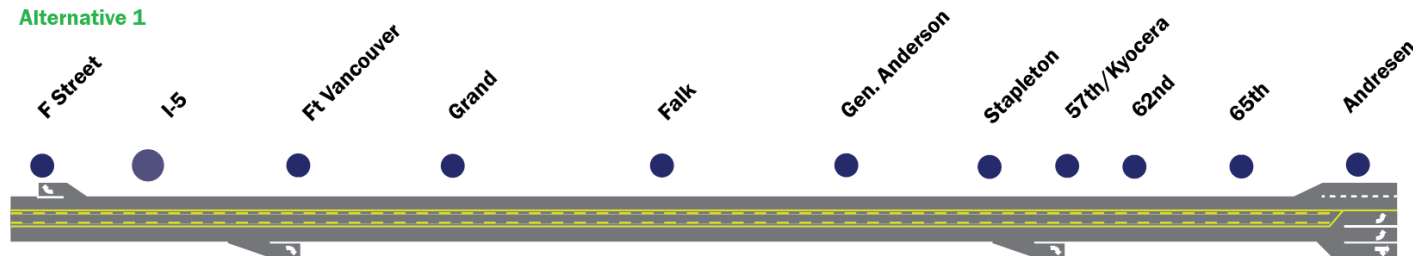
What lane reconfiguration ideas were tested?

Fourth Plain today in the study area generally has two travel lanes in each direction and a center turn lane. The figure below shows a typical section of Fourth Plain.

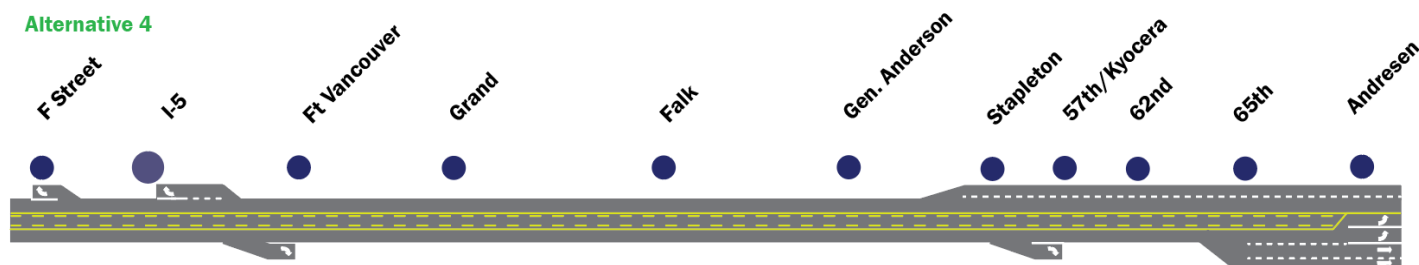


The project team analyzed several lane reconfiguration ideas, two of which are shown below. **Alternative 1** would repurpose a travel lane in each direction between F Street and Andresen in most of the corridor. **Alternative 4** repurposes a travel lane in each direction for most of the corridor but keeps both travel lanes westbound between Andresen and Stapleton and eastbound between 65th and Andresen. This addresses potential traffic issues shown in the modeling under Alternative 1. Both alternatives would maintain left turn lanes throughout the Fourth Plain corridor.

Alternative 1



Alternative 4



It's important to note that models aren't perfect. For that reason, the project team tested several higher and lower traffic assumptions to get a range of likely traffic outcomes for each lane reconfiguration alternative.

Key findings

The City looks at several criteria to understand how well drivers travel. The table below shows how each alternative would perform in the year 2040 based on the modeling. We also provide info about the existing conditions and “No Build” driving conditions for 2040 as a point of comparison (the No Build assumes that the corridor stays the same as it is today). Intersection delay is measured by Level of Service (LOS). LOS considers how long people driving have to wait at intersections on a scale from “A” (free flow) to “F” (gridlock). LOS D or E is usually considered acceptable amounts of delay during peak travel times (morning and evening rush hour). Additionally, the City has standards for how quickly people driving should be able to travel through the corridor. Generally, an average speed (both eastbound and westbound) of about 12 MPH is the minimum standard.

Overall, a lane reconfiguration that repurposes a travel lane in each direction is likely to work well from a traffic standpoint.

Table 1. Corridor Traffic Performance

	Existing Conditions	2040 “No Build”	2040 Alternative 1	2040 Alternative 4
<i>Description</i>	The corridor today without any changes	Future traffic performance assuming the corridor stays the same as today	Repurpose one travel lane each direction from F Street to Andresen	Repurpose one travel lane EASTBOUND between F Street and 65 th and WESTBOUND between Stapleton and F Street
<i>Intersection Delay</i>	Performs acceptably for the most part (most intersections between LOS “A” and “D”)	Performs acceptably and fairly similar to Existing Conditions	Lots of delay at the I-5 northbound on-ramp, as well as a couple of unsignalized side streets	Very similar to “No Build”
<i>Corridor average speed during MORNING peak hour (7:30 – 8:30 AM)</i>	Eastbound: 24 MPH Westbound: 24 MPH	Eastbound: 23 MPH Westbound: 23 MPH	Eastbound: 23 MPH Westbound: 22 MPH	Eastbound: 24 MPH Westbound: 23 MPH
<i>Corridor average speed during EVENING peak hour (4:00 – 5:00 PM)</i>	Eastbound: 23 MPH Westbound: 22 MPH	Eastbound: 22 MPH Westbound: 21 MPH	Eastbound: 17 MPH Westbound: 16 MPH	Eastbound: 22 MPH Westbound: 21 MPH
<i>Average time to drive through the corridor in the EVENING peak hour</i>	Eastbound: ~10 minutes Westbound: ~9.5 minutes	Eastbound: ~9.5 minutes Westbound: ~10 minutes	Eastbound: ~12 minutes Westbound: ~13 minutes	Eastbound: ~9.5 minutes Westbound: ~10 minutes

Diversion

Another potential impact we looked at is *diversion*. Diversion occurs when drivers choose alternative routes on nearby streets to travel to avoid traffic, and this rerouted traffic can impact neighborhood road traffic and safety. With a travel lane repurposed from Fourth Plain, some drivers would likely choose a different route like 18th Street, Mill Plain, or SR-500. The project team looked at likely diversions for each of the alternatives. For the most part, changes in traffic on other roads and highways near Fourth Plain were fairly minor. If diversion were to occur on nearby streets, the City could implement changes to traffic signal timing or other traffic calming to address diversion.

Next steps

From a technical standpoint, repurposing travel lanes from Fourth Plain would likely result in acceptable changes in traffic: Alternative 4 results in delay that is similar to No Build conditions, and average driver speeds and driving time

are also very similar to No Build. This opens up the possibility of using that extra roadway space for people walking, riding bikes, or for dedicated space for buses, and to increase safety for all users in the corridor. The project team and City are working to coordinate the next phase of this project, which will include further conversation with the TMC, the public, and the corridor community about goals for these potential changes. The project team will talk about the pros and cons of the lane reconfiguration with the community to understand how Fourth Plain can best serve everyone who lives, works, shops, recreates, goes to school, or otherwise uses the corridor.

SE 34th Street Safety and Mobility Project

VANCOUVER
CITY HALL



April 5, 2022

Transportation and Mobility Commission

Jennifer Campos, Principal Transportation Planner

Kara Hall, Senior Transportation Engineer,
Fehr & Peers

Presentation Overview

- Project Overview
- Design Considerations
- What We've Learned
- Community Engagement
- Next Steps

Project Overview



SE 34th Street will have a microsurfacing treatment in 2023 from SE 164th Avenue to SE 196th Avenue. The pavement project will provide an opportunity to evaluate potential changes to the street to improve safety, mobility, and accessibility.



Project Scope

1. Complete a traffic analysis along the corridor
2. Develop and implement a comprehensive public outreach process
3. Develop potential design alternatives and potential improvements



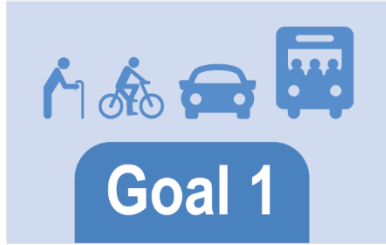
Complete Streets Goal

Complete a public outreach and design alternative process will improve safety, mobility, and equity on the SE 34th Street corridor in preparation for the 2023 pavement project

Project Overview



Project Overview



Improve comfort and mobility for all users



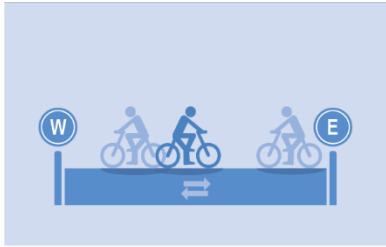
Prioritize safety for all users



Facilitate near-term implementation

Design Considerations

To improve comfort and mobility for all users, improvements could..



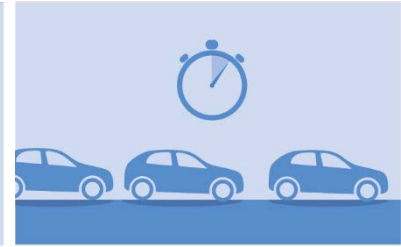
Create an east-west connection for people biking, rolling and using mobility devices



Improve access to existing transit service



Add aesthetic amenities



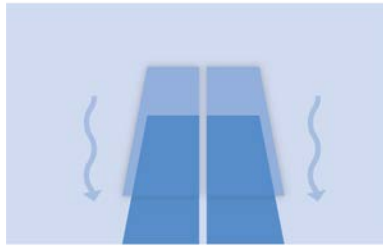
Not substantially add to driver delays

Design Considerations

To **facilitate near-term implementation**, improvements could...



Leverage low-cost solutions



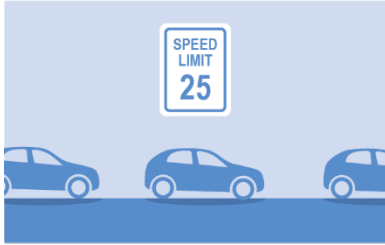
Be implemented with the planned overlay



Be eligible for outside funding

Design Considerations

To **prioritize safety for all users**, improvements could...



Use traffic
calming to lower
speeds



Improve locations
with high number
of crashes or
conflict points



Support safe
pedestrian
crossings near
key destinations

SE 34th Street Existing Operations



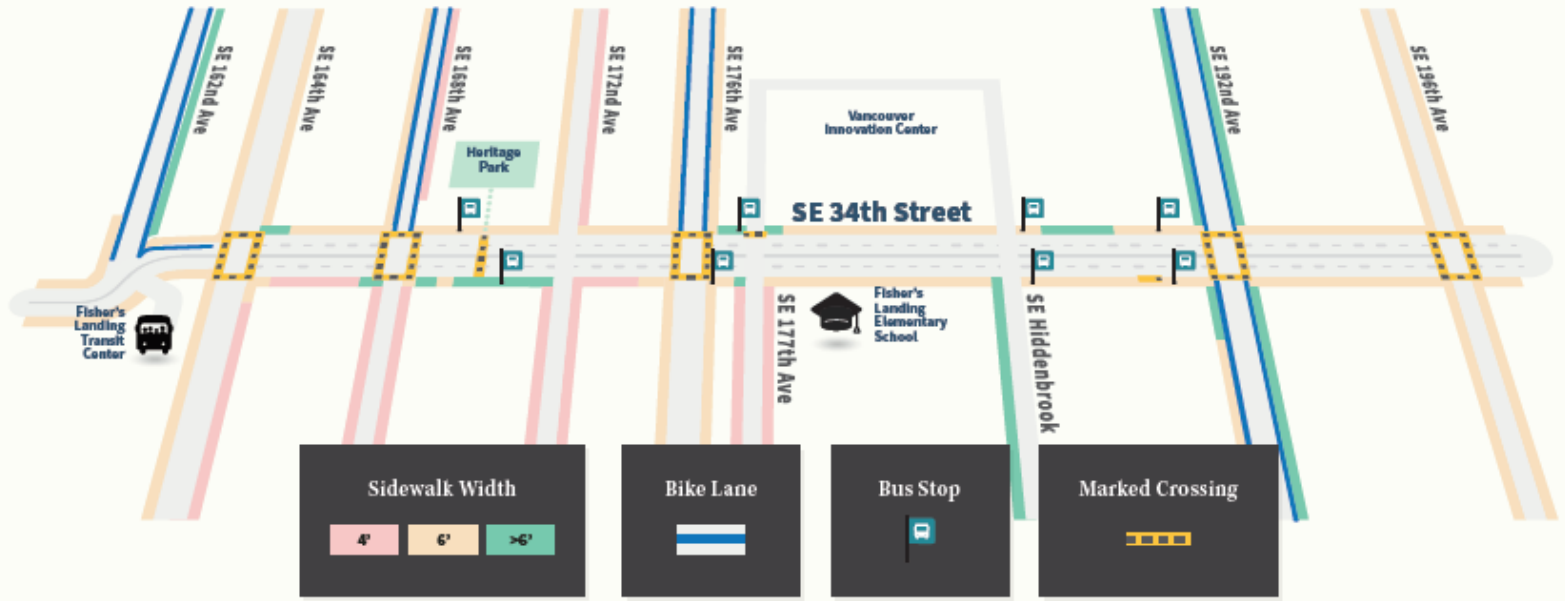
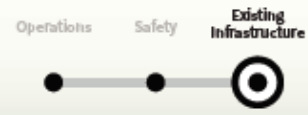
SE 34th Street Safety



Fatal crashes: none
Between 2014 and 2020, 86 crashes occurred on the corridor.

Source: WSDOT (2014-2020)

SE 34th Street Existing Infrastructure



SE 34th Street

Existing with Lane Reduction

With Lane Reduction



SE 34th Street

2027 with Lane Reduction

With Lane Reduction

Existing 2027 2040



SE 34th Street

2040 with Lane Reduction

With Lane Reduction



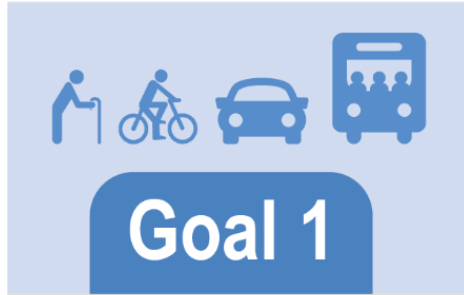
Design Considerations



What We've Learned

- Can we achieve the project goals by repurposing a travel lane to add facilities for people biking?
- What will be the trade-offs for people driving?
- Where do we need to provide additional safety improvements or consider other design options?

What We've Learned



**Improve comfort
and mobility for all
users**



Creates a new east-west connection for people biking



Improves access to transit for people biking



Does not substantially add to driver delays in the near-term and mid-term



Long-term (2040) travel time may increase by two minutes with expected growth



Will need to consider the character of the corridor when identifying near-term solutions

What We've Learned



**Prioritize safety
for all users**

- ✓ Fewer travel lanes make intersections easier to navigate for people walking and biking
- ✓ Improves contributing factors to crashes involving someone walking or biking
- ✓ Enhance existing crossings and connect key destinations
- ✗ Long term, queueing at SE 164th and SE 192nd Avenues may need to be addressed to maintain safety at those intersections

What We've Learned



Facilitate near-term implementation

- ✓ Restriping could occur with the microsurfacing
- ✓ No large capital investments would be required in the near to mid-term
- ✓ Safety improvements would be eligible for grant funding
- ✗ More intensive capital treatments may be required at SE 164th and SE 192nd Avenues to address congestion expected by 2040

Community Engagement

Touchpoint #1

Timeline:

April 2022

Event:

BeHeard Online Open House

Goal:

Share project overview and identify potential safety issues

Outcome:

Understand community concerns

Community Engagement

Touchpoint #2

Timeline:

June 2022

Event:

BeHeard Online Open House, School Intercept
Surveys & Stakeholder Listening Sessions

Goal:

Share analytical findings and design options being
considered

Outcome:

Understand community concerns and determine
additional needs

Community Engagement

Touchpoint #3

Timeline:

August 2022

Event:

BeHeard Online Open House

Goal:

Share preferred alternative and identify any remaining safety concerns

Outcome:

Understand community concerns and determine additional needs to be incorporated in final design

Next Steps

- April through June 2022 – Gather Community Feedback & Refine Design Concepts
- June through August 2022 – Develop Project Design & Gather Community Feedback
- September 2022– Safety & Mobility Study Concludes
- Summer 2023 – Pavement Microsurfacing Treatment
- Summer 2023 through summer 2024 – Implementation of other capital improvements
- Ongoing throughout project: communication and information sharing with community and project stakeholders

Questions and Discussion

Jennifer Campos, Principal Transportation Planner

jennifer.campos@cityofvancouver.us or 360-487-7728

<https://www.cityofvancouver.us/se-34th-street-safety-and-mobility-project>



DATE: April 5, 2022

TO: Chair Ramos and Transportation and Mobility Commission members
CC: Rebecca Kennedy, Community Development, Ryan Lopossa, Public Works

FROM: Jennifer Campos, Community Development

RE: **SE 34th Street Safety and Mobility Project**

The focus of the workshop today is the SE 34th Street Safety and Mobility Project. As part of the City's ongoing Complete Streets Program, the SE 34th Street Safety and Mobility Project is evaluating potential changes to improve safety and mobility on 34th Street between 164th and 192nd avenues. The project is evaluating repurposing a travel lane in each direction to add dedicated space for people walking, biking, rolling, and using mobility-assistance devices, and other safety improvements in the corridor for all users, including drivers.

Along with the overriding Complete Streets project goals, several corridor specific goals have been identified for the SE 34th Street project process and are being used to align potential changes to the corridor with the project goals. The specific goals for the project are:

- 1. Improve comfort and mobility for all users, regardless of how they choose to travel**
 - a. Provide an east-west connection that serves cyclists of all ages and abilities
 - b. Improve accommodations for existing transit, as well as future planned service
 - c. Add landscaping, art or other amenities to the corridor
 - d. Avoid adding substantial delays to people driving
- 2. Prioritize safety for all users**
 - a. Improve corridor safety by reducing driver speeds
 - b. Address identified conflict points/collision locations
 - c. Support safe pedestrian crossings especially around schools, retail hubs, transit stops, and the Vancouver Innovation Center campus
- 3. Make improvements quickly & efficiently**
 - a. Use low-cost solutions
 - b. Maximize efficiency of pavement treatment opportunity
 - c. Utilize eligible grants, impact fees, or state/federal investment

Technical analysis is being completed to understand how repurposing a travel lane would change travel for all users in the near-term, mid-term, and long-term as the City continues to grow and

development occurs in the vicinity of SE 34th Street. Early analysis being completed for the project is focused on answering three key questions:

1. Can the project goals be achieved by repurposing a traffic lane to add buffered mobility lanes?
2. What are the trade-offs for users of repurposing a traffic lane?
3. Are there locations that will require additional improvements or a different design concept?

Analysis completed to date indicates that under the near-term and mid-term scenarios, repurposing a traffic lane will achieve the project goals by leveraging the planned pavement project and reserving capital investment for additional project features that would improve safety for all users. Repurposing a travel lane would provide dedicated space for people biking and rolling, increase the separation from vehicles for people walking, and enhance connections to transit along the corridor. In the near-to mid-term, this can be achieved without substantially increasing travel time or delay experienced by people driving.

Under the long-term scenario, approximately 20 years from now, additional improvements may be needed at the intersections with SE 164th and SE 192nd Avenues to reduce delays that are forecast to be experienced by drivers.

Based on the initial findings, the project team is working to refine design options for the corridor and identify how improvements could be phased over the next 20 years. This includes low-cost improvements that could be deployed to improve safety for all users in the near-term and long-term options that will require additional funding sources.

Community outreach for this project includes stakeholder engagement with impacted groups as appropriate, including residents, businesses, corridor users, neighborhood associations, community-based organizations, historically excluded and underserved communities, and the Transportation and Mobility Commission. The first touchpoint with the community, planned to occur in April 2022, will provide an overview of the project and allow the community to identify safety issues that should be considered as concepts are refined. This will be followed by a series of events in June 2022 that will provide an opportunity to community members and stakeholders to review the findings and design concepts and provide feedback prior to final design.

Pavement treatment is currently scheduled for summer 2023, which requires that project analysis and design concept development are completed by September of this year. To meet this timeline, the following project schedule has been developed:

- April through June 2022 – Gather Community Feedback & Refine Design Concepts
- June through August 2022 – Develop Project Design & Gather Community Feedback
- September 2022– Safety & Mobility Study Concludes
- Summer 2023 – Pavement Microsurfacing Treatment
- Summer 2023 through summer 2024 – Implementation of other capital improvements

Staff Contact:

Jennifer Campos, Principal Planner, Jennifer.campos@cityofvancouver.us

Emily Benoit, Senior Planner, Emily.Benoit@cityofvancouver.us

From: [Nischik, Julie](#)
Cc: [Kennedy, Rebecca](#); [Campos, Jennifer](#)
Bcc:

Subject: FW: light pollution
Date: Friday, April 1, 2022 1:37:00 PM
Attachments: [image004.png](#)

Commissioners,

Please see the below response from Tom Brennan with Nelson\Nygaard regarding a follow up email from Commissioner Jackson after the last TSP workshop and in regards to her comment at the workshop related to light pollution.

Thanks,
Julie Nischik (She/Her/Hers)
CITY OF VANCOUVER, WASHINGTON

From: Kennedy, Rebecca <Rebecca.Kennedy@cityofvancouver.us>
Sent: Thursday, March 17, 2022 7:27 PM
To: Jackson, Leah <Leah.Jackson@cityofvancouver.us>; Ramos, Eduardo <Eduardo.Ramos@cityofvancouver.us>
Cc: Campos, Jennifer <Jennifer.Campos@cityofvancouver.us>
Subject: RE: light pollution

Hi Leah-

Jennifer and I discussed your comments and concerns related to light pollution with the TSP consultant team, and below is their follow up response. We are working to incorporate this into the goals and objectives in the manner described by the consultant project managers below. More to come on this at the next TSP presentation to the TMC, but I wanted to provide this initial response so that you know we are working to address your comments. Thanks as always for your participation and feedback- we appreciate it. Please let me know if you have any questions! - Rebecca

Dear Commissioner Jackson,

Through the Vancouver Moves process, our work centers on developing a TSP update that is grounded in community values. We understand that you and many community members have a strong interest in reducing light pollution in Vancouver neighborhoods, and we want to support and honor that objective. It aligns with other values we have heard about the importance of livability and neighborhoods, as well as respect for the natural environment. We apologize if our response the last TMC meeting didn't advance this discussion or adequately respond to your comments. Public street lighting, including the type, placement, and direction of lighting has a big impact on safety but also livability and nature, and we plan to review best practices and our work in other cities to identify policies and lighting approaches that can illuminate the public ROW without pushing light

upward or into private homes. We are in the process of revising the TSP goals, objectives, and metrics and working to integrate the input from you and the TMC.

Thank you again for your candid feedback. Please continue to push us to deliver the best plan for Vancouver.

Best Regards,

Tom Brennan
Stephanie Wright

Thomas Brennan

Principal

t +15032282152 m +15037892718

Nelson\Nygaard

Rebecca Kennedy | Deputy Director

Pronouns: She/Her/Hers

CITY OF VANCOUVER, WASHINGTON

Community Development Department (CDD)

M: (360) 624-6070 | **O:** (360) 487-7896

rebecca.kennedy@cityofvancouver.us

www.cityofvancouver.us



Please note that I am working remotely. Please call my mobile number if you need to reach me over the phone. Learn more about the [City's COVID19 Response here](#).

From: Jackson, Leah <Leah.Jackson@cityofvancouver.us>

Sent: Monday, March 7, 2022 8:28 PM

To: Kennedy, Rebecca <Rebecca.Kennedy@cityofvancouver.us>; Ramos, Eduardo <Eduardo.Ramos@cityofvancouver.us>

Subject: light pollution

Rebecca & Eduardo,

I am writing to you both as I am not entirely clear on how to share my thoughts and frustrations.

I was very disappointed in the discussion on light pollution during our meeting the other night.

I expect that if we pay a consultant that they are able to discuss these issues. I found myself doubting what I *knew* as they pushed back on the definition of light pollution and what metric other cities use to rate their light pollution.

I am all in on using less power but fear that if that is our metric we risk continued pollution.

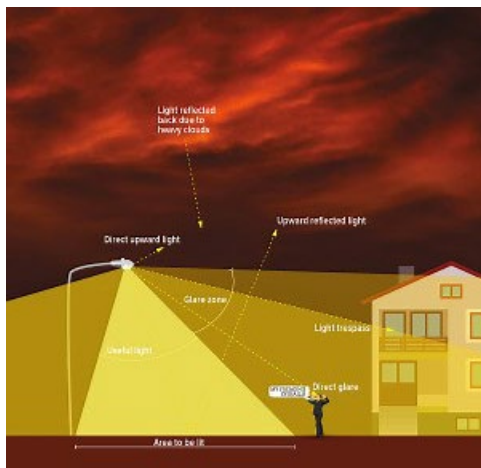
We should be discussing smart lighting.

Please advise on how I should move forward with my concern.

Thank you.

The site below has some very good information if you are unfamiliar with the subject.

<https://www.darksky.org/light-pollution/>



[Light Pollution - International Dark-Sky Association](https://www.darksky.org/light-pollution/)

"The sun, the moon and the stars would have disappeared long ago . . . had they happened to be within the reach of predatory human hands." — Havelock Ellis, *The Dance of Life*, 1923 [...]

www.darksky.org

From: [Marcus Griffith](#)
To: [Transportation and Mobility Commission Agenda Calendar](#)
Cc: [Nischik, Julie](#); [Kennedy, Rebecca](#); [Campos, Jennifer](#)
Subject: Transportation and Mobility Commission: Light Pollution
Date: Sunday, March 20, 2022 11:03:23 AM
Attachments: [Tumwater Light Pollution Staff Report.pdf](#)

CAUTION: This email originated from outside of the City of Vancouver. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Transportation and Mobility Commission Members and Staff:

It's my understanding the topic of Light Pollution has come before the Commission. Based on past projects, I am concerned certain City staff prefer to define light pollution as a mere energy efficiency issue. That's just not the case.

Light Pollution is excessive, misdirected, or obtrusive artificial light. While energy use can be loosely used to gauge excessive light, it can not be used to determine light trespass, or other well known aspects of light pollution.

Any reasonable design standard for light pollution must include code that actually addresses light direction, brightness of the light, type of light, and location of the light.

For one such example, refer to the City of Tumwater's code, 18.40.035 Exterior Illumination. For additional information, one could read the attached 2009 City of Tumwater Staff Report on Light Pollution. That report was written 13 years ago by a town one-tenth the size of Vancouver.

Respectfully,

Marcus Griffith
Downtown Resident

OUTDOOR LIGHTING

Staff Contact: David Ginther, Associate Planner, City of Tumwater Planning and Facilities Department (360) 754-4210; dginther@ci.tumwater.wa.us

PURPOSE:

To establish new regulations governing outdoor lighting in order to reduce wasted energy, excessive and unsafe glare, light trespass, and light pollution from improperly designed or installed outdoor lighting.

BACKGROUND AND PROCESS:

In response to a citizen's concerns, the Public Works Committee discussed the issue of outdoor lighting and requested staff to assemble draft lighting standards for committee review. The Public Works Committee reviewed the draft standards during two meetings and conducted an outdoor lighting tour with the Planning Commission. The Committee then forwarded the draft standards to Planning Commission which held four briefings/public meetings on the issue as well as a public hearing. The City Council held a briefing and a hearing on the issue in early 2009. The issue was sent back to the Public Works committee which held three more meetings before referring it back to the full City Council.

THE ISSUE:

Light pollution: Light pollution is any adverse effect of artificial light whether from glare, decreased visibility at night, light trespass, or sky glow. This is a serious problem that affects your wallet, your health, your safety, and the environment.

Your Money:

Direction of light and wattage

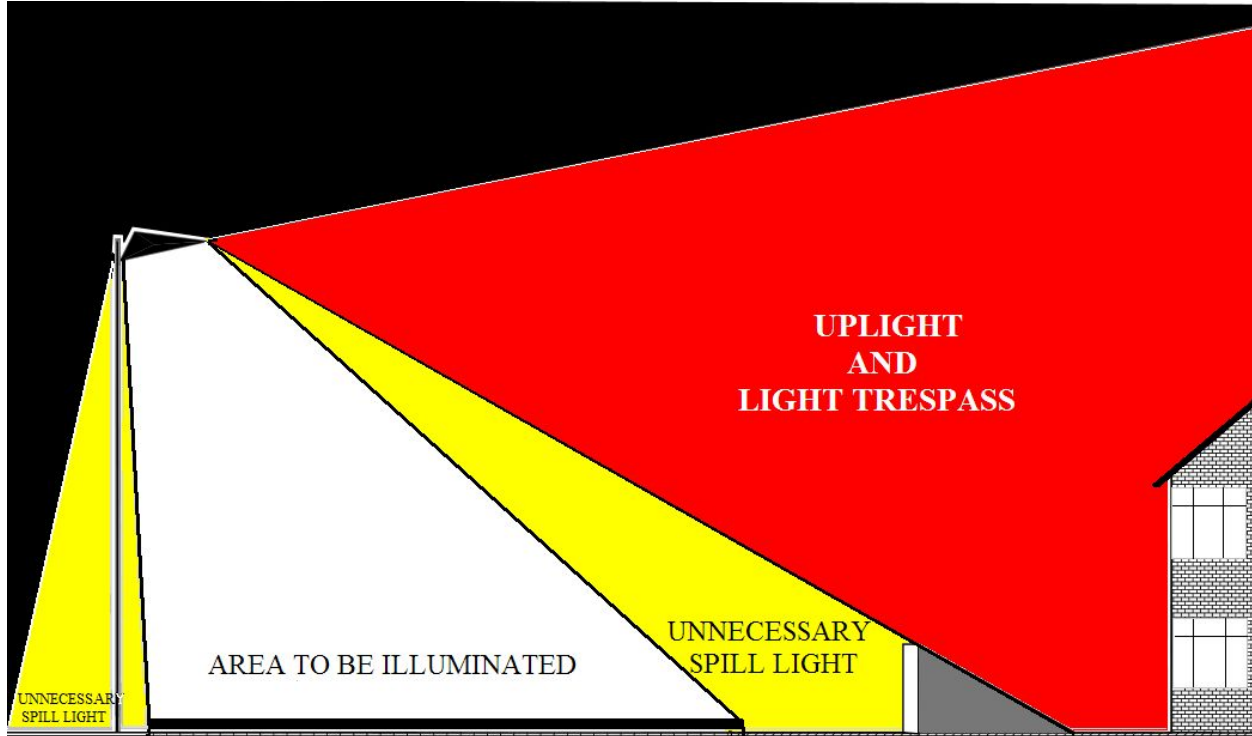
Would you want to pay the electric bill for light that never even touches your own property? Most people wouldn't, however, many lighting fixtures only send a portion of their light where it is intended to go. It has been estimated that a third of outdoor lighting spills out and upward, totally wasted. A conservative calculation of the cost in the U.S. comes to around \$4.5 billion annually. Added to that figure is the waste from excessively bright lighting and the 100% waste from lighting that's on when it is not needed. You are paying the price through higher electric rates, higher taxes for public lighting, and inflated costs for consumer products and services.

(Sources: <http://www.selene-ny.org> <https://www.darksky.org/>)

Some basic tenets for light pollution abatement are as follows:

1. Use light only where you need and use it
2. Use fully shielded fixtures to use the light where you want it and no where else
3. Use the appropriate wattage and not more than you need
4. Use a motion sensor if at all possible

Light that is emitted at or above an 80 degree angle generally does not hit the ground and is almost always a waste that is unnecessarily costing you money (180 degrees being straight up and zero degrees being straight down). If the lighting fixture is properly shielded and aimed, a smaller wattage bulb can often be utilized and still illuminate the desired area as much as before. It saves money to only light the areas you want or need.



The illustration above shows how light is distributed from an improperly aimed lighting fixture. Proper aiming & extra shields would narrow the focus to the intended area and remove uplight, light trespass, and spill light.



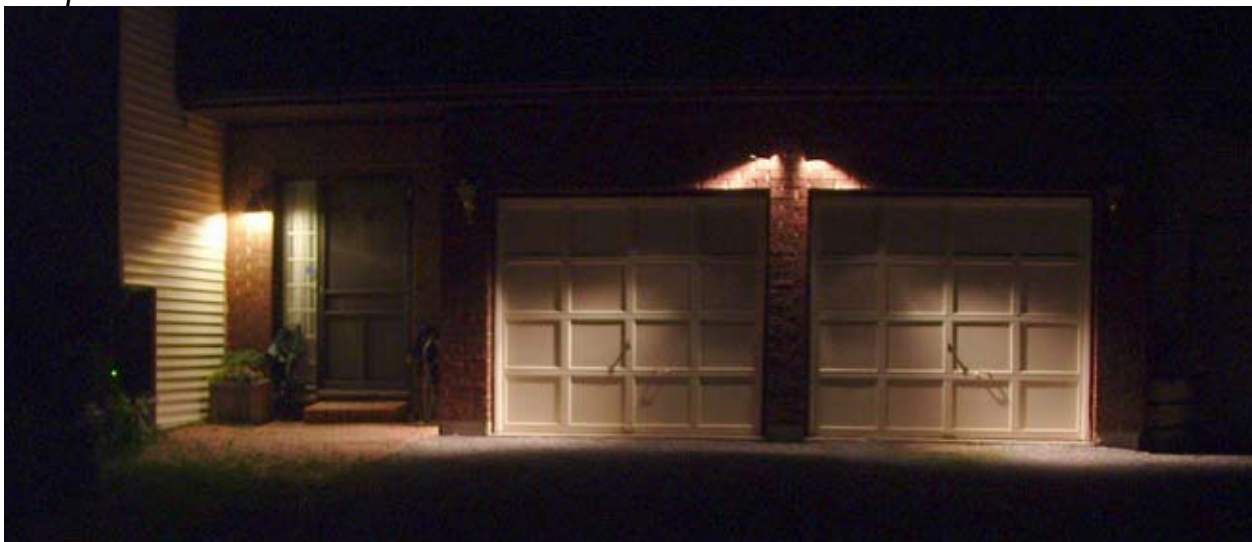
*An unshielded and improperly aimed light resulting in glare, light trespass, and decreased visibility for drivers and pedestrians.
(Floodlight at former Shell tank farm at Linderson Avenue/Tumwater Boulevard)*

The following two pictures and their captions are from Kevin Kell of the Starlight Cascade Observatory just outside Yarker, Ontario (Canada). He submitted a series of articles to the newsletter (called Regulus) for the Kingston Centre of the Royal Astronomical Society of Canada detailing his own lighting modifications at his residence. He was able to provide better lighting, remove glare, and significantly reduce his electricity consumption (600 watts before vs 60 watts after).

Source: <https://starlightcascade.ca/>



The before image [above] shows approximately 600 watts of unshielded incandescent lighting. The human eye adapts to bright point sources of light much like the camera meter and exposes for it, leaving much of the scene dark in comparison.



The after image shows approximately 60 watts of fully shielded compact fluorescent lighting with only a few bright hotspots of lighting on the immediate wall surfaces and much better even lighting.

Your Money (Continued):Type of lamp (bulb/luminaire)

There are a number of different types of lamps (also referred to as bulbs or luminaires) that can be used for outdoor lighting. The table below shows the differences in efficiencies, expected life, and color of light produced of the different types of lamps. All three of these can be factors in deciding which lamp is appropriate in a given location.

Table 1. Lamp Output.

Name	Nominal efficiency (lumen/Watt)	Lifetime (hours)	Color
Incandescent	12-17	1000-2500	Warm white (yellowish)
Halogen lamp	16-23	3000-6000	Warm white (yellowish)
Fluorescent lamp	52-100	8000-20000	White (with a tinge of green)
Metal Halide lamp	50-115	6000-20000	Cold White
Sulfur lamp	80-110	15000-20000	Pale green
High pressure sodium	55-140	10000-40000	Pinkish orange
Low pressure sodium	100-200	18000-20000	Yellow, virtually no color rendering

Note: CFL's produce ~60-72 lumens per watt (http://en.wikipedia.org/wiki/Luminous_efficacy)

Sources: http://en.wikipedia.org/wiki/Electric_light and http://en.wikipedia.org/wiki/Mercury_vapor_lamp and http://www.selene-ny.org/homeowner_tips.html



*Mercury vapor lamp
(Point Tavern)*

Lumen depreciation is another important factor to consider when deciding which kind of lamp to use. Mercury vapor lamps (below left), including the closely related metal halide lamps (right), have been popular in the past for outdoor area lights. However, these types of lamps suffer from lumen



*Metal halide flagpole lights
DOT Bldg (Linderson Way)*

depreciation. Mercury vapor lamps dim by half every five years while still using the same amount of electricity. The closely related metal halide lamps, which have started to take the place of mercury vapor lamps, also suffer from lumen depreciation. They tend to lose approximately 40% of their lumen output over their lifetime. This comes about because the mercury sticks to the glass and the electrodes over time which reduces the amount of mercury available to produce light.



*Low pressure sodium
(City Hall steps)*



*High pressure sodium
(New Market Streetlights)*

Low pressure sodium lamps (above left) are good choice for replacement of the aforementioned inefficient mercury vapor outdoor lights. Low pressure sodium is the most efficient lamp in regards to average lumens per watt and it is near the top of the list of long life lamps. These are often easily spotted due to their yellow/orange colors. High pressure sodium (above right), while not quite as efficient, is utilized in situations where color rendition is more important, such as streetlights.

Sources: http://en.wikipedia.org/wiki/Electric_light and http://en.wikipedia.org/wiki/Mercury-vapor_lamp and http://www.selene-ny.org/homeowner_tips.html and <http://tristate.apogee.net/lite/lhimhlm.asp>

Your Money (Continued):

Lighting costs for different types of lamps (luminaires/bulbs)

The online lighting cost calculator from Sensible and Efficient Lighting to Enhance the Nighttime Environment (SELENE) was utilized for the lighting cost calculations in this section. The U.S. average residential electricity rate of 10.5 cents/kilowatthour was used for all calculations. Source: <http://www.selene-ny.org/lightcost/>



Yardblaster area light costs:

The cost to operate that \$55 yard blaster (\$54.47 at Home Depot) can vary substantially depending on the type of bulb used. Some types of bulbs will cost more per year to operate than the entire cost of the fixture while others only cost a fraction of that amount.



*Yard blasters with mercury
vapor lamps (Point Tavern)*

Mercury vapor: A 175 watt (7400 lumens) mercury vapor lamp will cost you ~\$77 to operate dusk to dawn per year.

High pressure sodium (HPS): A 100 watt (9500 lumens) HPS lamp costs only \$45.82 per year with dusk to dawn operation. Note that even though the HPS is a lower wattage than the mercury vapor discussed above, the light output (lumens) is substantially higher.

Low pressure sodium (LPS): A 55 watt (7650 lumens) LPS lamps costs \$35.03 per year with dusk to dawn operation. (<http://selene-ny.org/lightcost.asp>).

Compact fluorescent: If a 65 watt (4300 lumen) compact fluorescent lamp (CFL) is used in the yard blaster then the operating cost drops to \$31 per year. RAB Lighting has just begun selling a 65 watt CFL yard blaster with an optional shield (called a Down Blaster). The shield eliminates uplight and increases light on the ground by 45% making the lower watt/lumen CFL a viable option for use in this style of light (see p.8 for discussion on light shields).



*Yard blaster with low pressure sodium lamp
(The partial homemade shield is to stop light from entering a neighbors upstairs bedroom window)*

Alternative area lights:

One of many alternatives to the yardblaster style of light is an area light called a Glarebuster. These fully shielded lights (~\$66 at AceHardwareOutlet.com and Amazon.com) work well for the typical homeowner who needs patio, porch, or driveway illumination. The use of a 26 watt CFL (1750 lumens) results in a yearly operating cost of \$12.98 for dusk to dawn operation and only \$1.15 if a motion sensor is used.



Glarebuster lighting fixtures

Security spotlights:

A fully shielded incandescent spotlight with two 90 watt bulbs (1280 lumens each) and a motion sensor would cost approximately \$7.65 per year to operate. If the same fixture were to use two 23 watt CFL bulbs (1200 lumens each) it would cost you only \$2.54 per year to operate (like the residential retrofit by Mr. Kell on p.3).

Note: These types fixtures use PAR38 bulbs (PAR=Parabolic Aluminized Reflector)



Homemade shields (Kevin Kell)



Commercially available shields by Parshield

Your Money (Continued):

Shielded lights = more light where you want it

Keep in mind that utilizing energy efficient light bulbs is only part of the picture. Putting the right amount of light only where you need it is another key component to saving money. Typical unshielded yard blaster lights waste about half of their light skywards. Shields for these types of lights redirect and focus the wasted light to the area where it is needed.

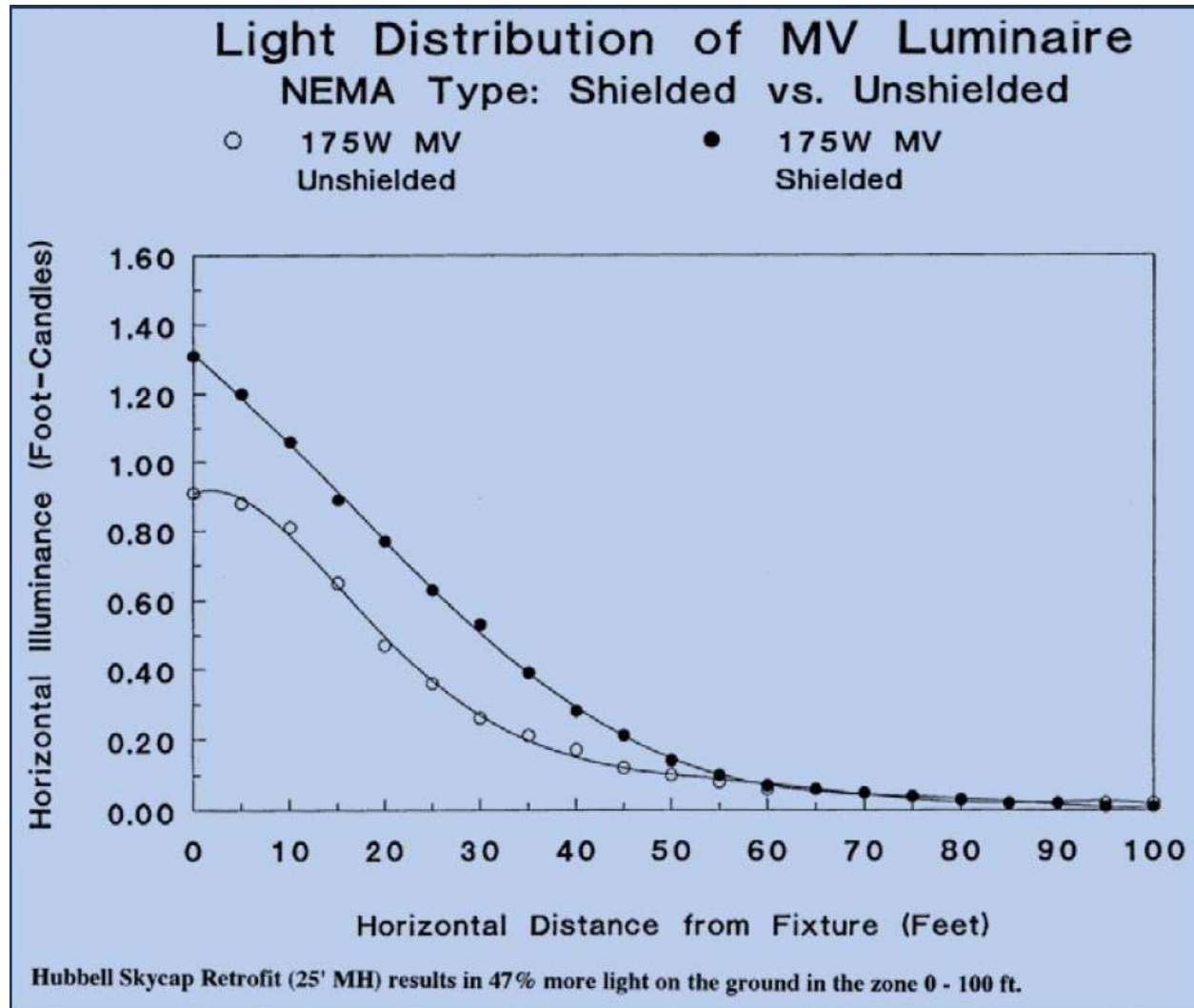


Unshielded yard blaster light at Point Tavern



Shielded version at former State Parks & Rec Bldg

Several manufacturers make shields for the yard blaster style of lights. GE makes a shield called the Skyguard, Hubbell makes one called the Skycap, and RAB Lighting makes one called the Shy Shield/Down Blaster. Several studies have been conducted showing substantial increases in illumination of parking lots and other areas after a yard blaster has been fitted with a shield.



Outdoor Lighting Associates, Inc – Ames IA

2

The graph above shows results for a test before and after a shield was placed on a mercury vapor yard blaster light. The shield utilized was a Hubbell skycap on a 25 foot tall pole. As can be seen, there is a substantial increase (47% on average) in the amount of light on the ground. Even all the way out to 55 feet from the light the shielded light outperforms the unshielded light. After 55 feet the amount of light on the ground is similar for both shielded and unshielded.

A lighting project at the University of Wisconsin Madison (called the “Full Cutoff Lighting Demonstration Project”) showed that adding shields resulted in a doubling of illumination under the fixtures with no increase in power consumption. Due to the increase in illumination levels as a result of the shields, lower wattage bulbs (100 watt vs. 150 watt) were able to be utilized and the illumination of the parking lot was still 25% above recommended engineering levels. Approximately \$22 per year per light was saved by switching from 150 watt to 100 watt lamps (\$62.86 vs \$41.91). The \$22 savings will make up for the ~\$27 purchase price of the shield and the \$13 price of the new bulb in less than two years.



Unshielded Light

Shielded Light (Shield by RAB Lighting)

Studies and demonstration projects such as these show how the use of fully shielded lighting can directly result in saving money, provide better levels of illumination, as well as reduce unsafe glare, light trespass, and skyglow.

<http://darkskywisconsin.uwex.edu/about/publications/Cutoff%20Demonstration.pdf> (Univ. of WI-Madison Full Cutoff Lighting Demonstration Project)

Note: Goodmart.com and Prolighting.com both sell full shields for these fixtures for ~\$27.



Unshielded yard blaster (far side of street)



Shielded yard blaster (foreground)

Note: Photos from General Electric showing their shield called a Skycap vs an unshielded yard blaster

<http://www.mediasoft.net/macdowell/oldandnew.htm>

Health:

Medical evidence is mounting that exposure to light at night disrupts the body's natural renewal cycle and might even put you at greater risk for certain diseases. Exposure to light at night has been shown to cause suppressed melatonin production in humans. Suppressed melatonin production has been proposed as a potential risk factor in breast cancer. Researchers at the National Cancer Institute and the National Institute of Environmental Health Sciences have concluded a study that suggests that artificial light during the night can be a factor for breast cancer. A study in Israel showed a correlation between nighttime lighting levels and cancer. Another study on nurses who work the night shift also showed a correlation between night time lighting and breast cancer.

In addition, light shining into windows is a nuisance that often leads to the poor sleep. Insufficient sleep has been linked to health problems such as high blood pressure, diabetes, depression and obesity, according to the American Academy of Sleep Medicine.

<http://www.illinoislighting.org/links.html>

<https://www.darksky.org/>



Ridgeview Loop (Tumwater Hill)

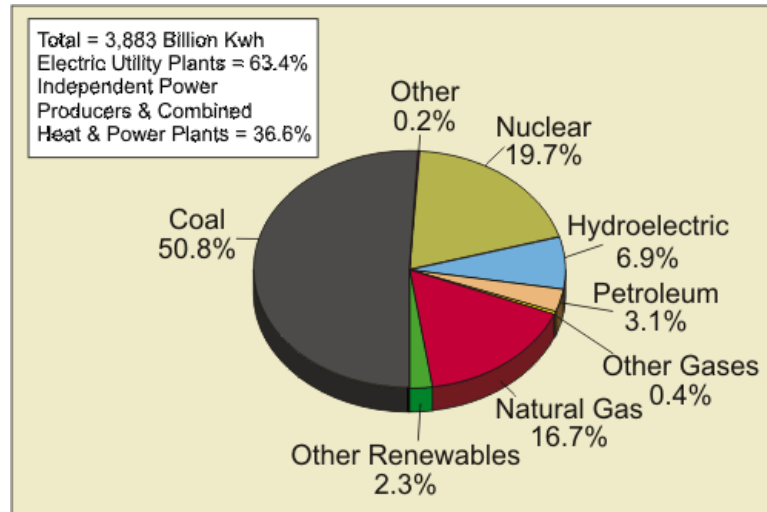


*Shield for Streetlight
Olympic Way NW (Olympia)*

Even though the streetlight on the left is a fully shielded “cobra” style light, the height of the pole and the small setback of the home create a light trespass problem. In some situations this can be remedied by the use of an additional shield on the back side of the light. Locally, Olympia, Thurston County, and Puget Sound Energy use shields to remedy situations such as this.

Environment:

Misdirected lighting is simply wasted energy. This waste artificially inflates the demand for energy. Emissions from fossil fuels used to generate electricity can have many negative effects on the environment. More than 70% of the power generation



in the U.S. is done with fossil fuels. Even with best available technologies and pollution controls the burning of fossil fuels to produce electricity still results in the emissions of green house gasses. Wasting light through the use of improperly designed or aimed or utilized lighting fixtures contributes to global warming.

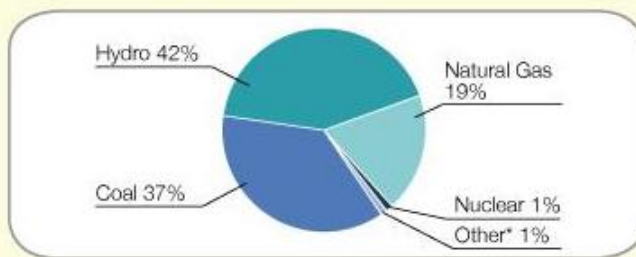
Source: Energy Information Administration (US Dept of Energy), Form EIA-906, "Power Plant Report" and EIA 920, "Combined Heat and Power Plant Report." Figure 2. U.S. Electric Power Industry Net Generation, 2003. <http://www.eia.doe.gov/neic/brochure/electricity/electricity.html>

Energy Supply - Electricity - Power Supply Profile

A diversified mix

The electricity that Puget Sound Energy (PSE) delivers to customers is generated using a number of different resources. The fuel mix resources used for generating electricity delivered in 2007 are shown in the following table and chart:

State of Washington, CTED: Fuel Mix Disclosure



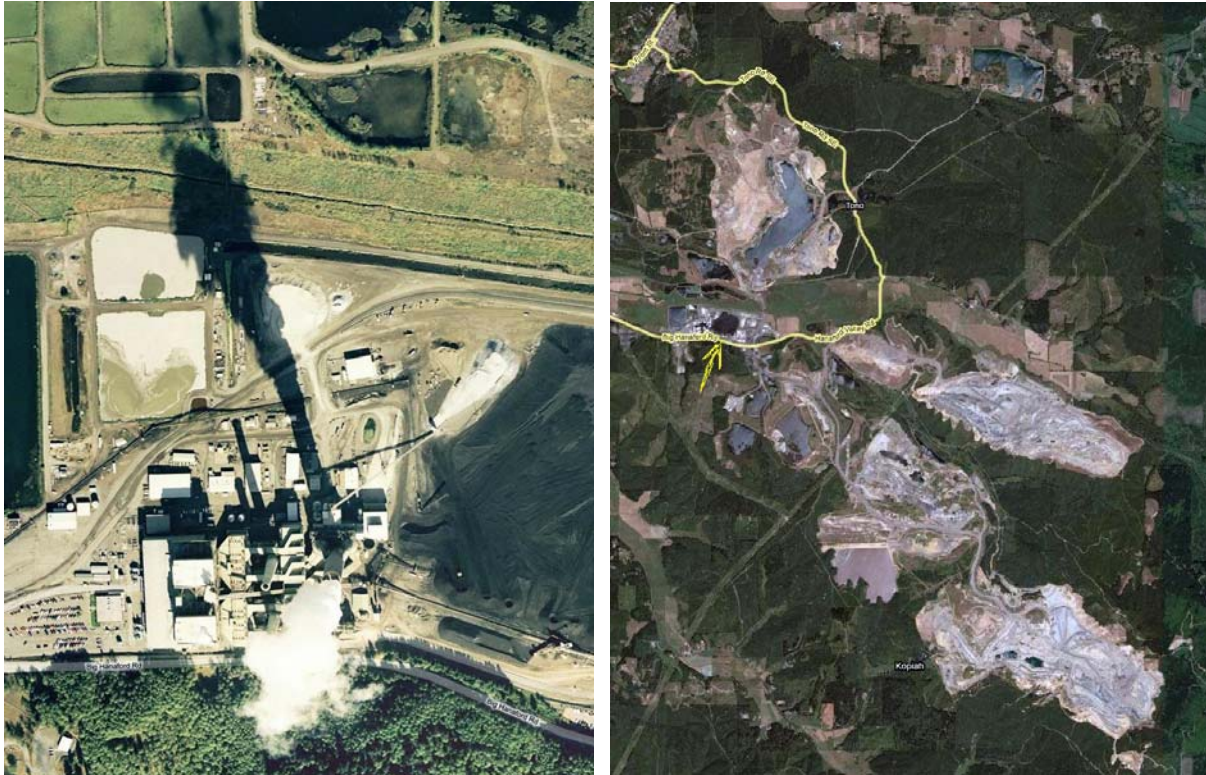
* Biomass, landfill gas, petroleum, waste, wind and solar.

In 2007, PSE sold renewable energy credits (RECs) associated with the power output of its two wind-power facilities, so this power is not included in the fuel-mix report.

Source of data:
As reported by PSE to, and published by, the State of Washington Office of Community, Trade and Economic Development, Energy Policy Section, 2007.

56% of PSE's (Puget Sound Energy) electricity comes from burning fossil fuels such as coal and natural gas. This is a bit less than the national average due to the extensive use of hydroelectric power in the northwest.

The Centralia Power Plant and Mine (pictured below) is a coal fired electric generating plant located only 20 miles south of Tumwater. On clear cold days the steam plume can be seen from Tumwater.



The Centralia Power Plant (left) and Mine (right)

In the picture of the mine (right) the power plant location is denoted with a yellow arrow on the left side of the photo. The extent of the disturbances caused by the coal mining can be seen clearly in the aerial photo on the right.

Even dams, seemingly the most benign of the power generating facilities, can change natural river flows, degrade water quality and block fish migration, endangering fish. Small dams can also be high impact if they lack mitigation measures such as fish ladders. Approximately 42% of the electricity supplied by PSE comes from hydroelectric projects.

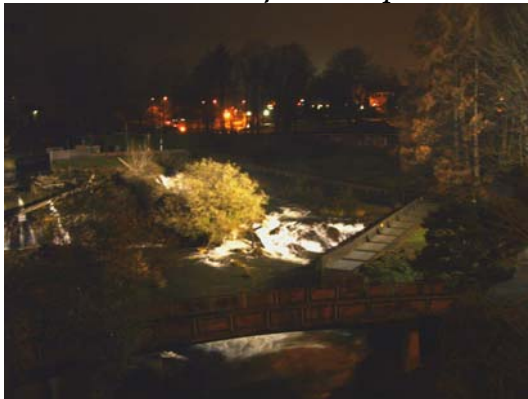
Sources: PSE chart on previous page and <https://renewablenw.org/>

Light pollution can also harm plants and animals. All earth's creatures have evolved over thousands of years by adapting to a world that is dark at night. The loss of true darkness can alter the growth cycle of trees, weakening them and making them more susceptible to disease and severe weather. Birds, fish, frogs, bats, moths, and plankton are just some of the animals whose behavior has been shown to be affected by increasing nighttime light, often with disastrous results.

Although it may not seem intuitive, fish such as salmon can be detrimentally affected by nighttime lighting and light trespass. It has recently been found that the eyes of young salmon take about half an hour to adjust to dramatic light changes. Two University of Washington researchers found that predators such as dogfish and sculpins wait in illuminated eddies to pick off temporarily blinded smolts.



Falls Terrace from Capitol Boulevard Bridge over Deschutes River



Upper Deschutes Falls and fish ladder



Falls Terrace lights

Another example of inadvertent detrimental effects of nighttime lighting on wildlife is the thousands of birds that are killed in large cities such as Toronto, Chicago, and New York due to light pollution. Many migratory birds migrate at night. Lights in and on large buildings disorient the birds, some of which collide with the buildings. The City of Chicago's Department of the Environment estimates that tens of thousands of birds are killed from nighttime lights each season in the City. In 2004, Chicago became the first US city to go dark during spring and fall bird migrations. Studies in Chicago have shown that migratory bird fatalities are reduced up to 80% when the lights are turned off. New York and Toronto both have similar programs aimed at reducing the effects of night time lighting on bird populations.

<https://www.darksky.org/>

<https://www.seattlemet.com/arts-and-culture/2008/12/0608-givebacknight>

<http://www.birdmonitors.net/>

<http://www.terrain.org/articles/15/kousky.htm>

<http://nycaudubon.org/NYCASBirdWatch/TabDefault.asp>

<http://www.illinoislighting.org/links.html>

Safety:

Glare from bad lighting that blinds a motorist, even momentarily, can result in a fatal situation. Older Americans are particularly at risk. As one ages the eyes take a longer time to adjust from excessive brightness to less bright areas. Consider the contrast between the excessive illumination common at gas stations and the darker roadway the next time you gas up your vehicle at night. Impaired driver vision during this transition poses an even greater hazard for pedestrians.

Lighting for safety is very important. People must be able to see clearly see where they are walking and driving. These amendments do not take away this important safety aspect of lighting, they simply require wasted lighting that is misdirected upwards or off premise or creating safety hazards such as glare to be directed in an appropriate manner to the area where the light is really needed.

Bad lighting

Unshielded and improperly installed lights produce large amounts of glare and misdirected light. Most of the light is wasted skywards and on adjacent properties and streets. Drivers and pedestrians both experience diminished vision due to the glare. This creates an unsafe situation, but at least it can easily be prevented.



Floodlight at entrance to Shell Pipeline Terminal Facility on Linderson Avenue



Floodlight and wall box at (former) WA State Parks and Rec Bldg-Cleanwater Lane

Bad lighting (cont.)

*Floodlight and wall box at WA State Patrol Facility
7219 Cleanwater Lane (adjacent to Tumwater Boulevard)*



Sign floodlights at Timberland Library Offices (Tumwater Boulevard)



Wall boxes at Washington State Department of Printing (76th Avenue)

Bad lighting (cont.)

*Parking lot floodlight at the Tumwater Public Works shop.
As can be seen in the picture (taken from New Market Street) it is not a fully shielded light but rather an outward oriented floodlight that produces glare and uplight.*



*Flagpole light on other side of walkway
Point Plaza East (Israel Road)*



*Wall box and parking garage lights
Town Center East (Israel Road)*

Good lighting vs. bad lighting--wall boxes

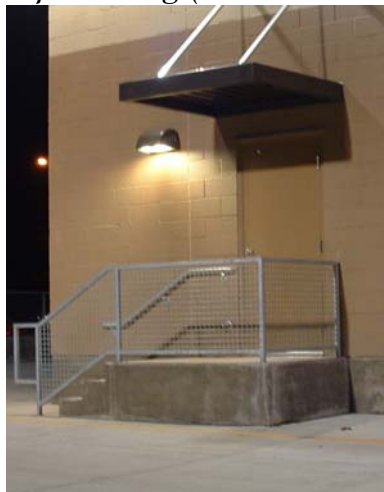
Well-designed fully shielded fixtures that direct all their light downward, onto the ground have far less glare. Without the glare you're able to see your surroundings clearly rather than being blinded by the lights' harsh brilliance.



*Good: Fully shielded wall box
WA Dept of Printing (New Market St.)*



*Bad: Unshielded wall box
Dept of Health (Town Center East)*

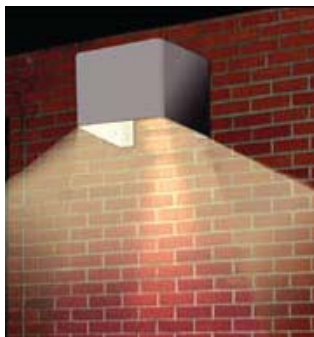


Good: Lowes (Yelm Highway)



Bad: Tumwater Facilities Bldg (Israel Rd)

The fully shielded wall boxes on the left side of the page emit no upward lighting. In contrast the unshielded wall boxes on the right side of the page emit light out and up causing glare and light trespass. Fortunately the entire unshielded light does not have to be replaced to correct the situation. Add on shields are available for unshielded wall boxes from a number of manufacturers.



Add on shield from RAB lighting



Unshielded wall box

Good lighting

City Hall parking lot light with a fully shielded fixture. This light emits no uplight as evidenced by the downward angle of light seen on the adjacent trees.



Fully shielded lights on City Hall back steps



*Fully shielded area lighting
Olympia Federal Savings (Custer Way)*



*Fully shielded flush mount
walkway lights at Tumwater City Hall*

Good lighting (cont.)

*Fully shielded area light at gate to
Schmidt House (off Custer)*



*Fully shielded sign light
local restaurant (Tumwater Blvd)*



*Downward architectural/area lighting
Starbucks (Tumwater Fred Meyer)*



*Downward fully shielded lighting
Brewery City Pizza (Capitol Blvd)*

Security:

Generally people tend to feel safer when areas are well lit. These amendments do not take away security lighting, they simply require wasted lighting that is misdirected upwards or off premise to be directed to the appropriate area where the light is really needed. In addition, lights with motion detectors are listed as an exemption in the proposed amendments.



This is a before (left) and after (right) picture of a Charter Bank that remodeled its lighting system with full cutoff fixtures. As is seen in the picture, the reduced glare has eliminated almost all the harsh shadows (hiding spots) on the exterior of the bank and makes the building and its sign more visible.

U.S. Justice Department:

While outdoor lighting may reduce the fear of crime, it can also attract criminals, illuminating their tasks and creating deep shadows in which to hide. In the late 1970s and again in 1997, investigations by the U.S. Justice Department concluded that there is no meaningful evidence that street lighting affects the level of crime.

Source: <http://www.ncjrs.gov/works/> (see chapter7)

“Lighting campaigns seek to enhance the ability of people to provide protection for each other. In 1979, the predecessor agency of NIJ, the National Institute of Law Enforcement and Criminal Justice, reported on a review of 60 lighting evaluations. The authors of this review concluded:

‘Is street lighting an effective approach in the reduction and deterrence of crime? The answer is inconclusive. The paucity of reliable and uniform data and the inadequacy of available evaluation studies preclude a definitive statement regarding the relationship between street lighting and crime.’ (Tien, et. al. 1979, page 93, emphasis in the original)

Security (cont.):

Almost twenty years later, we know little more about the effectiveness of lighting.[...] Lighting has received considerable attention. Yet, evaluation designs are weak and the results are mixed. We can have very little confidence that improved lighting prevents crime, particularly since we do not know if offenders use lighting to their advantage. In the absence of better theories about when and where lighting can be effective, and rigorous evaluations of plausible lighting interventions, we cannot make any scientific assertions regarding the effectiveness of lighting. In short, the effectiveness of lighting is unknown.”



If you look closely you may be able to spot the faint outline of a person standing directly to the left of the light pole. The light appears to illuminate the trees better than the ground.

Chicago Alley Lighting Project:

In 1998 the City of Chicago instituted a program aimed at increasing the illumination in alleys in order to decrease crime. The increased lighting effect on crime was inconclusive. The following is an excerpt from the Final Evaluation Report of the Chicago Alley Lighting Project (2000):

“These contradictory research results of evaluative studies are not surprising. Many factors influence the level of actual crime and perceived risk, of which lighting is only one. The relative importance of these multiple factors is likely to vary between areas so that while increased lighting is a major influence on crime in one location, its significance elsewhere may be minimal (Ramsay 1989). In fact, it has been suggested that in some circumstances, increased lighting may actually lead to an increase in the level of certain property offenses (Fleming and Burrows 1986).”

<http://www.icjia.state.il.us/public/pdf/ResearchReports/Chicago%20Alley%20Lighting%20Project.pdf>

Security (cont.):

Deschutes Way (looking south from Boston Street)

*The lower row of lights is unshielded wall boxes mounted on the I-5 retaining wall
(The top row of lights is the “streetlights” in the center of I-5)*

Like the picture on the previous page, these wall box lights along Deschutes Way create glare and deep shadows. The street appears to be somewhat illuminated; however, the deep shadows under the lights and behind the bushes creates hiding spots for lurkers. A person walking towards their parked car will be temporarily



*Deschutes Way wallbox light (across street
from Falls Terrace Restaurant)*

blinded by the light's harsh brilliance and they will not be able to discern any lurkers waiting in the shadows. In this situation brighter lights would make matters worse. Also, drivers on the roadway may find it difficult to see pedestrians against the backdrop of glare from the wall boxes. Fully shielded fixtures would eliminate most of the blinding glare and produce a more even and balanced illumination of the area.

SUMMARY OF AMENDMENTS: (O2009-001)

The draft amendments establish a new section within Chapter 18.40 *Environmental Performance Standards* of the Tumwater Municipal Code.

The draft standards have the following main provisions:

1. Existing lights are “grandfathered”. No need to change anything that is already in place, however, new lights and replacement lights need to comply with the regulations.
2. Almost all new light fixtures must be fully shielded so that light is directed downward (not upwards or outwards)
3. Light fixtures must be installed such that there is minimal light trespass beyond property lines.
4. Light fixtures on business zoned properties that are mounted to the underside of structures such as canopies, awnings, etc, (such as those found at gas stations, drive thru facilities, service stations, and parking structures) generally must be flush mounted to the canopy so that the lens does not protrude below the surface to which it is mounted.
5. Exempt lights include seasonal decorations, outdoor movie projection equipment, sports field lighting, navigation lights, lights on moving vehicles, traffic control signals and devices, temporary emergency lighting, lights on structures on historic registers, and low lying landscaping lighting such as rope lights. Security floodlights with motion detectors are exempt from the shielding requirements but still must meet the light trespass standards.
 - Outdoor lighting for temporary or periodic events lasting less than seven days in a calendar year is allowed to be unshielded.
6. The regulations will apply to new streetlights on both public and private streets. However, public streetlights are exempt from the light trespass standards.
7. Upward pointed flagpole lighting is allowed for government flags provided it is shielded and louvered (downlighting of flags is encouraged).
8. When any development includes the installation of new or replacement exterior lighting, a basic lighting plan is to be submitted to the Development Services Department. The requirements of this basic plan are simple enough that it can be done by any applicant, no engineering is required. The basic lighting plan includes descriptions of the lights to be installed, their

locations, and a description of how the lights and their mounting locations conform to the outdoor lighting regulations.

- An engineered photometric lighting plan may be required for non-residential development proposals that are 4,000 square feet or larger.

OTHER DARK SKY REGULATIONS:

Many cities, counties, and states have already adopted “dark sky” type outdoor lighting regulations. Mammoth Lakes, California had exterior lighting retrofit deadlines in 2005 for residential and 2006 for commercial and industrial. Sun Valley, Idaho, required all existing lights to come into compliance with the new regulations in 2005. Goleta, California adopted their regulations in 2003. Ames, Iowa adopted full cutoff regulations in 1999. Branford Connecticut approved regulations in 1997. New Mexico approved the Night Sky Protection Act in 1999. Tuscon, Arizona and Pima County, Arizona approved very similar ordinances in 1994. Staff reviewed numerous jurisdictions’ outdoor lighting regulations including the following: Boulder, CO; East Hampton, NY; Albany County, WY; Adelaide (Australia); Arcade, NY; Blount County, TN; Breckenridge, CO; Casselberry, FL; Champaign, IL; Cochise County, AZ; Douglas County, CO; Fairfax County, VA; Goodyear, AZ; Greenwood Village, CO; Jupiter, FL; Palm Springs, CA; Pitkin County, CO; Pueblo, CO; Scottsdale, AZ; Ketchum, ID; Surrey (British Columbia); Shorewood Hills, WI; Sierra-Vista, AZ; Kent, NY; Upper Dublin Township, PA; and West Whiteland Township, PA. Many others can be found at the following links:

<https://www.townofmammothlakes.ca.gov/>

<http://www.illinoislighting.org/links.html>

<https://www.darksky.org>

Closer to home, Enumclaw, Brier, Burlington, Goldendale, Kennewick, Kirkland, Lake Forest Park, Lynnwood, Mountlake Terrace, Oak Harbor, Pasco, Okanogan County and Island County are some of the jurisdictions in Washington State that have already adopted “dark sky” type outdoor lighting regulations. Bainbridge Island approved very strict lighting controls in 2003. Bellevue approved regulations in 1994. Sequim approved regulations in 2008 for full cutoff streetlights in new developments. In addition, a number of other jurisdictions as well as the Washington State Legislature are currently discussing adopting dark sky type regulations. Olympia placed this issue on **RESOURCES** schedule for 2009-2010.

1. Washington Municipal Research Services Center
<http://www.mrsc.org/Subjects/Legal/nuisances/nu-light.aspx>
2. Proposed Washington State lighting legislation 2009 (HB1069):
<http://apps.leg.wa.gov/billinfo/Summary.aspx?bill=1069&year=2009>
3. Illuminating Engineering Society (IES) <https://www.ies.org/>
4. Responsible outdoor lighting organizations
 - a. <http://www.illinoislighting.org/index.html>
 - b. <http://www.darksky.org>

- c. <http://www.darksky.org>
- 5. Article by Mr. Bob Crelin in Sky and Telescope magazine, “How I Beat Light Pollution in my Hometown”
 - a. <https://skyandtelescope.org/>
- 6. Lists of compliant lighting fixtures
 - <http://www.nextrionet.com/mc/page.do?sitePageId=56422&orgId=idsa>
 - <http://www.skykeepers.org/odlight.html>

ATTACHMENTS:

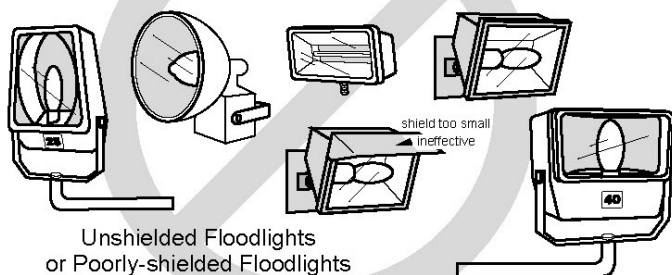
- 1. Flyer: *Examples of Acceptable/Unacceptable Lighting Fixtures*
 - a. The Public Works Committee requested a flyer showing acceptable and unacceptable lighting fixtures. The creator of the attached flyer, Mr. Bob Crelin, has given us permission to use it in our local lighting regulations. A couple of additional examples were added at the bottom of the page at the request of the Public Works Committee.
- 2. Example of a “*Basic Lighting Plan*” for a single family home (created on Microsoft Word).

Examples of Acceptable / Unacceptable Lighting Fixtures

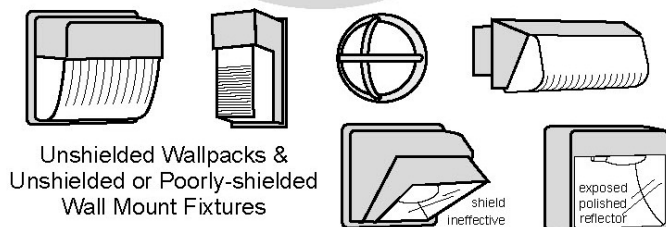
A1

Unacceptable / Discouraged

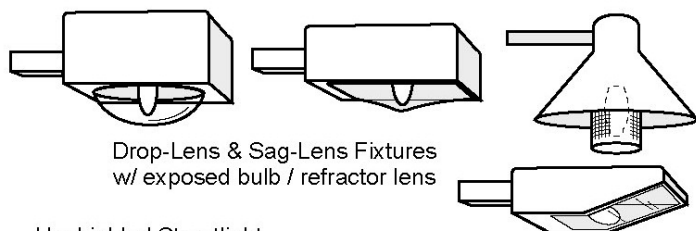
Fixtures that produce glare and light trespass



Unshielded Floodlights or Poorly-shielded Floodlights



Unshielded Wallpacks & Unshielded or Poorly-shielded Wall Mount Fixtures

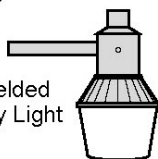


Drop-Lens & Sag-Lens Fixtures w/ exposed bulb / refractor lens

Unshielded Streetlight



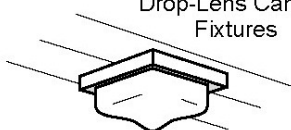
Unshielded Security Light



Unshielded 'Period' Style Fixtures



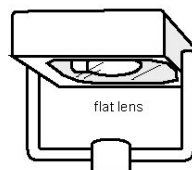
Drop-Lens Canopy Fixtures



Unshielded PAR Floodlights

Acceptable

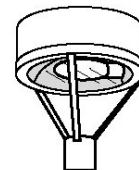
Fixtures that shield the light source to minimize glare and light trespass and to facilitate better vision at night



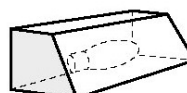
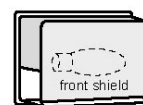
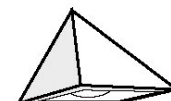
flat lens



Full Cutoff Fixtures



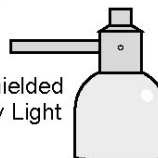
Fully Shielded Wallpack & Wall Mount Fixtures



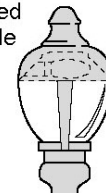
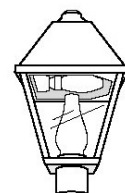
Full Cutoff Streetlight



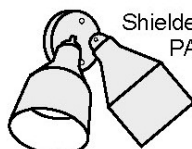
Fully Shielded Security Light



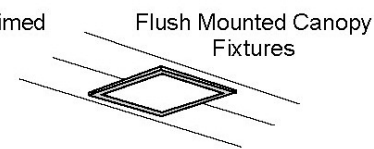
Fully Shielded 'Period' Style Fixtures



bulb shielded in opaque top



Shielded / Properly-aimed PAR Floodlights



Flush Mounted Canopy Fixtures

Copyright Bob Crelin BC 10/02

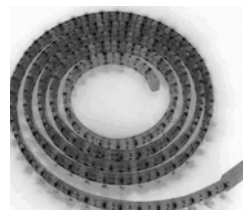
ADDITIONAL EXAMPLES

UNACCEPTABLE



Upward Oriented Landscaping Floodlight

ACCEPTABLE



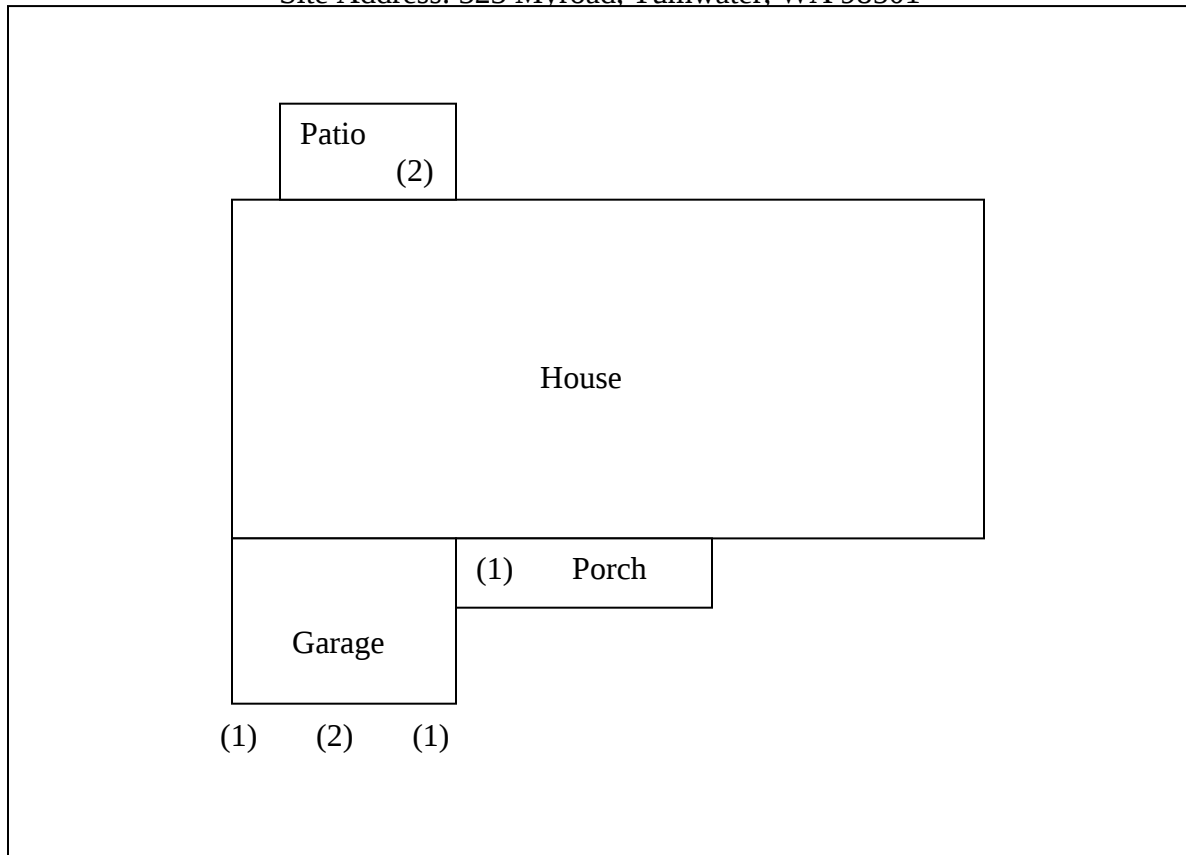
Rope Lighting



Partially Shielded Low Voltage Landscape light

EXAMPLE BASIC LIGHTING PLAN

Site Address: 323 Myroad, Tumwater, WA 98501



- (1) Three fully shielded light fixtures mounted at both sides of garage and by the front door at a height of 7ft. The fixtures are aimed downwards which prevents light trespass onto neighboring properties and are controlled by motion detectors set on 1 minute timers. No uplight is produced by these fixtures. See attachment for picture of light fixture.
- (2) Two fully shielded security floodlights. One mounted at peak of garage roof at a height of 15ft. The other is mounted at the entrance to the back door of the house at a height of 7ft. Both fixtures are shielded and have motion detectors with the timers set at 1 minute. Also, both fixtures are aimed downwards which prevents light trespass onto neighboring properties and prevents uplight. See attachment for picture of light fixture.

Statement of Compliance:

This lighting design (including the design, placement, and aiming of the lighting fixtures) complies with the Tumwater outdoor lighting regulations. If it is found that changes are necessary to come into compliance with the regulations the applicant will complete the changes in a timely manner and before an occupancy permit is issued.

Name: _____ Signature: _____

Contact information: _____

Example Basic Lighting Plan p.2 (attachments):

(1) Light fixtures to be used at both sides of garage and at front porch. Full cutoff, dark sky approved, motion detectors.



(2) Light fixtures to be used at the top center of the garage and on the back patio. Fully cutoff with motion detectors. The light will be aimed downwards to prevent glare, uplight, and light trespass.



Note: Both of these fixtures are available locally at Home Depot

From: [Protect our children's future. Vote yes on 1287 and 1091](#)
To: [Transportation and Mobility Commission Agenda Calendar](#)
Subject: EVs and Transit
Date: Tuesday, April 5, 2022 10:57:33 AM

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TMC 22 04 05

Hello, my name is Don Steinke, I taught science at FVHS.

There are some new developments related to transportation, I support. The new Transportation Budget from Olympia includes more funding for transit and multimodal transportation than ever.

It also includes a goal to ban the sale of cars that pollute, by 2030. They also established the multiagency EV coordinating council to figure out how to make it happen. This is the same as California's mandate, except 5 years earlier.

Last night at the City Council workshop, we learned that 300 charging stations are planned for the new HQ development across the street from Columbia Palisades.

We also know that Amazon, Fed Ex, UPS, Walmart, and Hertz have ordered a total of more than 300,000 electric trucks, and we learned that Amazon plans a giant distribution center near East Fourth Plain Walmart.

We've advocated for years, at Clark Public Utilities that they invest more in conservation and renewables, in order to provide the electricity for those vehicles. They've been listening. Two weeks ago, they decided to invest \$30 million as a down payment on *Advanced Metering Infrastructure* aka smart meters, which will allow them to orchestrate continually changing loads with continually changing renewable resources.

And this morning, we learned that a giant off-shore wind farm has been proposed between Long Beach and Grays Harbor Washington. It will produce more energy than two Bonneville Dams.

I also support density for the city of Vancouver. Density is essential to make transit better. I think transit should be so good that people would rather take it than drive. Maybe the state budget would allow transit to be free. Maybe we need security guards riding along, like they have on their trolley in Tacoma.

I appreciate all you do. Thanks for the opportunity to speak.

Don Steinke

Sent from [Mail](#) for Windows

From: [Urbane Streets](#)
To: [Transportation and Mobility Commission Agenda Calendar](#)
Subject: 2022.04.05 CoV - TMC - 5 April - Citizen Comments - Workshops E Fourth Plain & SE 34th St
Date: Tuesday, April 5, 2022 6:41:33 PM

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Dear TMC and staff / consultants,

Sorry I did not get my RSVP into the queue in time to say these comments.

Workshop: Complete Streets Fourth Plain Safety and Mobility Study
Workshop: Complete Streets SE 34th Street

It is exciting to see very positive movement forward on both of these long dormant corridor traffic safety and mobility enhancements that got stalled out by the Great Recessions etc. I used to bike (and bus) commute along Fourth Plain, as it was a much quicker and level route to get to our office by the mall (vs Burnt Bridge Creek trail etc.)

Do be bold and do the right thing now for all roadway users and those living along these long under invested routes.

There will be some who fight it, but if you look back in the long arc of the road diets / lane reconfiguration work that the City started doing in 2000 (East Fourth Plain, Grand Blvd., Evergreen Blvd, McLoughlin Blvd., etc.) there are no cases where the 'patient died' from the treatment, but they flourished instead (vs the naysayers). It was instead those routes where 'meek measures' or 'do nothing' decisions were made that the corridors suffered. The other 'solution' would be to widen these roadway rights-of-ways but this would be deadly to most of these neighborhoods...so you are on the right pathway.

Do not dally and have another generation of children grow to adulthood while they wait.

One case in point discussed tonight was East Fourth Plain, much of the work proposed could and should have been done by CTRAN's Vine Project many years ago AND much would have been paid for by the FTA/ Federal funds versus later by more local funding now, sadly...a lesson learned.

Todd Boulanger
Vancouver WA 98660

From: [Don Steinke](#)
To: [Transportation and Mobility Commission Agenda Calendar](#)
Subject: Charging stations for apartment dwellers
Date: Tuesday, April 5, 2022 7:03:57 PM

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Fromm Don Steinke
To TMC

Regarding the commissioner comment at the end regarding charging stations in apartments

Hi again,

Charging stations for multifamily developments is a very important issue.

Not only is it important for new multifamily developments, but also for existing multifamily developments that will be around for the rest of the century.

I've advocated for two years on the importance of installing the conduit for charging plugs before new pavement is poured, but I have many climate related concerns that need to be addressed and need help.

It costs \$6000 more per parking spot to install a charging plug after the pavement is poured. The oil industry loves it when we don't include the conduit first.

I'm also on Rebecca Small's Climate Action Task Force

I believe that one city in Vermont, and Montreal or Toronto have/has provided incentives for existing owners of multifamily developments to install charging plugs.

Clark Public Utilities does not get involved with building codes, but provides incentives for charging plugs.

Thanks for volunteering to be on the commission.

Don Steinke