



CITY OF TROUTDALE

"Gateway to the Columbia River Gorge"

AGENDA

CITY COUNCIL – REGULAR MEETING

Troutdale Police Community Center – Kellogg Room
234 SW Kendall Court
Troutdale, OR 97060-2078

Tuesday, November 13, 2018 – 7:00PM

Mayor

Casey Ryan

City Council

*David Ripma
Randy Lauer
Larry Morgan
Glenn White
Rich Allen
Zach Hudson*

City Manager

Ray Young

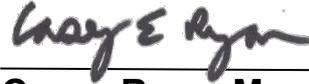
City Recorder

Sarah Skroch

1. **PLEDGE OF ALLEGIANCE, ROLL CALL, AGENDA UPDATE.**
2. **PUBLIC COMMENT:** Public comment on non-agenda and consent agenda items is welcome at this time. *Public comment on agenda items will be taken at the time the item is considered. Public comments should be directed to the Presiding Officer, and limited to matters of community interest or related to matters which may, or could, come before Council. Each speaker shall be limited to 5 minutes for each agenda item unless a different amount of time is allowed by the Presiding Officer, with consent of the Council.*
3. **CONSENT AGENDA:**
 - 3.1 **MINUTES:** September 25, 2018 City Council Regular Meeting and October 9, 2018 City Council Regular Meeting.
 - 3.2 **MOTION:** A motion to approve a letter to state and regional elected officials regarding the regulation of single use plastic bags.
4. **PROCLAMATION:** Native American Heritage Month *Mayor Ryan*
5. **DISCUSSION:** Multnomah County alternative intersection feasibility evaluation Historic Columbia River Highway and Buxton Road. *Steve Gaschler, Public Works Director*
6. **DISCUSSION:** Local homeless problem *Rip Caswell, Troutdale Resident*
7. **STAFF COMMUNICATIONS**

8. COUNCIL COMMUNICATIONS

9. ADJOURNMENT



Casey Ryan, Mayor

Dated: November 7, 2018

City Council Regular Meetings will be replayed on Comcast Cable Channel 30 (HD Channel 330) and Frontier Communications Channel 38 on the weekend following the meeting - Friday at 4:00pm and Sunday at 9:00pm.

Further information and copies of agenda packets are available at: Troutdale City Hall, 219 E. Historic Columbia River Hwy. Monday through Friday, 8:00 a.m. - 5:00 p.m.; on our Web Page www.troutdaleoregon.gov or call Sarah Skroch, City Recorder at 503-674-7258.

The meeting location is wheelchair accessible. A request for an interpreter for the hearing impaired or for other accommodations for persons with disabilities should be made at least 48 hours before the meeting to: Sarah Skroch, City Recorder 503-674-7258.

DRAFT

MINUTES
Troutdale City Council – Regular Meeting
Troutdale Police Community Center – Kellogg Room
234 SW Kendall Court
Troutdale, OR 97060

Tuesday, September 25, 2018 – 7:00PM

1. PLEDGE OF ALLEGIANCE, ROLL CALL, AGENDA UPDATE

Mayor Ryan called the meeting to order at 7:00pm.

PRESENT: Mayor Ryan, Councilor Ripma, Councilor Lauer, Councilor White, Councilor Allen and Councilor Hudson.

ABSENT: Councilor Morgan (excused).

STAFF: Ray Young, City Manager; Sarah Skroch, City Recorder; Tim Ramis, Acting City Attorney; Chris Damgen, Community Development Director; Erich Mueller, Finance Director and Mollie King, Recreation Program Manager.

GUESTS: See Attached.

Mayor Ryan asked, are there any agenda updates?

Ray Young, City Manager, replied on consent agenda item 3.1 the resolution regarding the IGA with the Sandy Drainage Improvement Company that we discussed last meeting is being pulled. There are some typos in the IGA we need to repair. It will be back on a future agenda.

2. PUBLIC COMMENT: Public comment on non-agenda and consent agenda items is welcome at this time.

Paul Wilcox, Troutdale resident, stated consent agenda item 3.2, it appears on the very top left corner of page 1 it's using the Kibling Avenue address for City Hall. Also, at the bottom of page 2, it shows Debbie Stickney as City Recorder.

3. CONSENT AGENDA:

3.1 RESOLUTION: ~~A resolution authorizing an Intergovernmental Agreement between the City of Troutdale and the Sandy Drainage Improvement Company.~~
Pulled, coming back on a future agenda.

3.2 RESOLUTION: A resolution accepting a right-of-way deed from Firebird Industrial LLC for NE Harlow Road right-of-way.

3.3 RESOLUTION: A resolution accepting a perpetual non-exclusive utility easement along NE Harlow Road from Firebird Industrial LLC.

MOTION: Councilor White moved to approve consent agenda items 3.2 and 3.3. Seconded by Councilor Lauer. Motion Passed 6-0.

4. PRESENTATION: NW Natural's Low Carbon Pathway.

Nina Carlson, NW Natural, stated I am the liaison for government affairs to our jurisdictions and I want to thank you for having me here tonight. About 5 years ago our company did a real deep analysis of our business model and our climate that we were in. We noticed some areas that we had risk. And by us having risk that means our ratepayers may have risk. Probably the largest risk going forward was climate change and potential carbon or climate legislation coming out of the federal government or one of the 2 State Houses. We believe this session there will be some sort of a cap and invest or carbon tax that we will be looking at. Ahead of that, without being regulated to do so, we basically put together some strategies that we could address climate change as an independent local gas distribution company. That's kind of what I'm going to go through with you today. The reason I think it's important for you guys is you may be asked by your state legislator, what do you guys think? What are your constituents saying? What about your community? This is just our thoughtful way of trying to address that. And it may sound a little bit wonky but in the scope of this next session I think you're going to be pleased that we were out there doing it. I really need folks like you who are decision makers, policy makers and leaders to know where we're at. We believe in a low carbon future. We believe that climate change is real and that it requires collective action from all of us. As your utility providing something that does emit green half gases when it's used, we believe that we are in a unique place to help address some of the issues in climate change. It basically is down to 3 real serious objectives.

Nina Carlson showed the Council a PowerPoint presentation (a copy can be found in the meeting packet).

Nina Carlson stated we encourage you to take a look at this. If you have questions, we have a lot of people that have a wealth of technical experience and we love to show them off to people.

5. REPORT: A report on Troutdale's Recreation Program.

Mollie King, Recreation Program Manager, stated I want to share with you a little bit about our rec program. I've been here in Troutdale for 8 years and I love this community. I've worked in a lot of different communities and I enjoy the small town and the people. The people are really friendly and warm here. It's been a pleasure to serve here in this town.

Mollie King showed the Council a PowerPoint presentation (a copy is attached as Exhibit A to these minutes).

Mollie King stated we offer year around programs and I just want to highlight some of the ones that I kind of call my bread and butter programs. These are the ones that go term after term. Our yoga program, soccer classes, dance, taekwondo and we have some science classes. Those just continually run and we have great followings. We get new people coming in and we have our tried and true. Also with the yoga program, when I got here 8 years ago we had a company here offering yoga but the whole point of her and her company being here was to have someone in the program be interested in teaching, get the training and then teach in Troutdale. And that's exactly what happened. We have various programs that run off and on. Right now we have Tai Chi going, we did some theater classes and we have some drop in programs. We have a little kid play park program, Friday night basketball in partnership with Multnomah County Sheriff's Office and the adult basketball program. Both basketball programs are free to our public. We have a long term volunteer. We also work with various contractors. Right now I'm working with Mt. Hood Community College with their wilderness leadership program trying to figure out some different things we can do in partnership with them. A new program we offered this summer was the Wilderness Survival. They learned a lot of great skills like building fire, whittling and building shelters. I just wanted to share with you why I think this department is so valuable and what it does for our community. Building community is what I feel I do and try to support why it's important. What goes with that is combatting isolation, physical and emotional well-being and these people get to know each other. Upcoming we have a disaster preparedness class in November. Also, one of the things I'm working on is thinking more and more about how to create family opportunities. I'm leaning towards looking into trying to offer a couple concerts in the park.

Mayor Ryan stated it's good stuff. I know Fairview does movies in the park. Have you thought about it?

Mollie King replied I did think about it. So the part I like about concert versus movies, movies is a start and a finish and music is unique in how people can really connect with music. I like the movie thing too. It's something definitely to explore as well.

Mayor Ryan stated it would be kind of cool down at the Sam Cox Building to do a Christmas movie. You could be inside and serve hot chocolate and stuff in the back.

Councilor Allen stated many of our services are essential for existence of life. The program that you're involved in gives the City heart. I appreciate you being there.

6. PUBLIC HEARING / ORDINANCE (Introduction): An ordinance to adopt Text Amendments to Chapters 1, 3, 5, and 6 of the Troutdale Development Code.

Chris Damgen, Community Development Director, stated this is a text amendment hearing that we're going into about accessory dwelling units and also accessory structures. We're going to go through the staff presentation and this will be the first reading. You'll have a second reading, assuming no further delays, at your October 9th meeting. The issue at hand that we have in front of you tonight is really coming out of

state law and it came from Senate Bill 1051 which was passed last year and went into effect July 1st.

Chris Damgen showed the Council a PowerPoint presentation on Accessory Dwelling Units and Structures (a copy is attached as Exhibit B to these minutes).

Chris Damgen stated it requires certain cities, including Troutdale, to allow for accessory dwelling units in single family residential zoning districts, at least one. The existing standards that are in our development code did not meet the legal requirements of Senate Bill 1051 so we're therefore required to do a full text amendment to that section replacing it in its entirety with standards that we believe are clear and objective and that meet the spirit of the law. I will do my best to answer any questions. I will state that the Planning Commission worked really hard on this. This is not an application that they necessarily welcomed or promoted but it is part of their duty and I think they did their best interest to look after the interest of the citizens. We believe we are in good shape as far as being in compliance and keeping the State and Metro happy with what we're proposing.

Councilor Allen stated one thought is, there is that idea where if 10% of people like to chop down the trees on their property then at that rate the property changes hands and X number of years all the trees in the city would be gone. This is kind of a reverse case where if a certain percentage of the people like to build accessory structures as it changes hands you start getting more and more throughout the city. Especially if you were to allow investment dollars to do it. It seems like we're all built differently psychologically. I'm not a natural extrovert but when I go to higher density areas, my heart rate goes up and my stress level goes up and I feel more relaxed when I come home to a suburb. If we densify everywhere there's nowhere to go. It just kind of reminds me of the building strategy of the 1800's and I wonder if people are reading history books these days. Where they went for smaller and smaller and denser and denser housing to where they ended up with squalor. How do we prevent squalor? That's one thought. What about our capacity on our water pipes and our sewer pipes and so forth? We've got relatively new infrastructure. Whereas some areas have older infrastructure and they have to replace it anyways. So it just seems like there is a lot of things going on here. I worry about what it will do to our town. I saw during the recession that there were a lot of people that were doubling up and tripling up in homes and parking became a problem and so forth. But this is more of a permanent thing instead of a recession. I'm thinking long term. We're not increasing the variety of homes we're just going to make everything dense. It's going to be dense everywhere.

Chris Damgen stated the idea of accessory dwelling units while seemingly newish is actually an old concept. If you consider the more affluent neighborhoods of Portland a lot of these turn of the century homes, we look at these now as single family homes. But when they were built a number of them over time became illegal ADU's or multiple unit homes with the appearance of single family façade. It was done because housing costs were high, families wished to stay together and I think what we're seeing now is we're in an era where housing costs have definitely increased. We're in an era where we see as

demographics change that increasing demographics, especially to East County, have expectations from where they originated from where families of multiple generations live together. I appreciate the concern about maybe investment properties. I think we've tried to safeguard that in the proposal by requiring ownership to live on the property. My mother is 86. She can't tend to a single family home anymore. I maybe don't want her in a nursing home but if I can offer her some measure of independence yet connection with where I live maybe that's an attractive option. The types of inquiries that we're seeing are more toward that example where you have people that say they want to have their dad live with them or their child can't afford something immediately out of college because they have college bills to pay. These are the types of arrangements that at least when we hear the reasons why people want to do it, at least in Troutdale.

Councilor Ripma stated Chris has done a good job defending this. There's another thing, Rich, we are being forced to do this. We have no choice. If we don't adopt these reasonable regulations there will be no regulations. Accessory dwelling units will be allowed without any requirement for parking or anything else. We don't have to be happy with this. I think Chris and the staff have done a good job of making it fit Troutdale's need and our desire to preserve the city and the neighborhoods and represent the best interest of the public. I recognize that the State has passed this. We have to adopt something. Can we apply this just to R-5?

Chris Damgen replied it has to be for what they call single family residential districts. It's R-20, R-10, R-7 and R-5.

Councilor Ripma stated the applicability of the setbacks and other building requirements for single family homes, the setbacks for building an accessory dwelling unit are not the same as the setbacks for an accessory structure.

Chris Damgen stated in section 5.950 that's the development standard. All ADU's shall comply with the primary dwelling units building setbacks and height standards of the underlying zoning district.

Councilor White stated I want to compliment the Building and Planning Department and Planning Commission. I think this is really well thought out. I hope our surrounding cities do as good a job as you guys did on this. My question has to do with system development charges. Is that going to trigger a SDC when you add an ADU?

Chris Damgen replied yes. I would caution that for the purposes of the development code implementation, we don't talk about SDC's but they do have to be acknowledged. There are schools of thought on how to handle it. That is a discussion the City Manager and the Public Works Director will need to have on an appropriate way to do it. Most jurisdictions because of the size requirements of ADU's is generally acknowledged that an ADU's impact on systems are less than a primary dwelling.

Mayor Ryan asked, Ray, when will we be able to look at some of those options?

Ray Young replied there are notice requirements with the State that you have to go through.

Tim Ramis, Acting City Attorney, stated I agree there's a wide variety of ways this is handled. I think you have a lot of latitude in choosing a system for that. It's an important policy decision. It'll need to be justified in terms of an economic analysis of impact.

Chris Damgen stated each city can handle that differently even for primary dwellings. Some cities handle it by number of fixtures you have in your unit kind of like a commercial business would have. It's really based on the analytics, the numbers, the study and then ultimately what the city would like to decide how to handle it.

Councilor White stated this kind of has to do with the next agenda item. If someone builds an ADU on their property it's probably going to cost more than \$10,000.00 to do that. Is that going to trigger a reassessment of their entire property? How is that going to work?

Tim Ramis replied I would assume that if it's visible from the street you will get a visit from an appraiser.

Erich Mueller stated if you had an attached ADU and you spend \$45,000.00. Well you're going to be above that \$10,000.00 threshold. That amount is going to be applied against the changed property ratio for that class of building whether it's single family home or other type. That resulting number is going to be added to the existing assessed value.

Councilor White stated I think when we first brought up ADU's I made a request that we come up with some kind of a tax impact worksheet so people know what to expect. I don't want people thinking they're going to get rich off ADU's. I think if Portland's an example that's definitely not the case. I think that would help people make a better decision. Some of our properties can't be serviced by sewer so they're on septic, could you build an ADU and then tie into an existing septic tank?

Chris Damgen replied effectively it would be a call to the county sanitarian and looking at the septic system, its capacity and the ability to expand it if needed. We make no exclusions for that. I think it's important to stress just because it might be permitted by the zoning district doesn't mean it can actually be accomplished based on site constraints.

Councilor White asked, when you say it can exceed the primary height is that what that area would be zoned for?

Chris Damgen replied correct.

Councilor White asked, what prevents somebody to move into their duplex, call it their primary residence, build 2 accessory dwellings and then move back to their other house? Is there a time limit?

Chris Damgen replied I think it would depend on whether or not the duplex itself was on one lot or if the lot line went through the firewall in between the duplex because we have that scenario. The way we have it written is it's up to two for each primary dwelling. Yes, conceivably, you could. Most of our duplex zoned properties are R-4 attached housing zoning district or A-2 which in those cases they would not be zones where you would have that situation occur. So I don't really see that scenario playing out.

Councilor White stated there's this new phenomenon of tiny homes that are on wheels. Would those qualify?

Chris Damgen replied this is a hard one because with tiny homes there has been a hot potato game right now being played between the State Building Codes Division and the Division of Motor Vehicles on what is it. Is it a building? Is it a vehicle? The way I believe it's being played out for finalization is that the Building Codes Division will regulate them so long as they're not on an axle. As long as the tiny homes can pass muster on building code requirements and they can also pass the standards that the City of Troutdale would impose, yes, a tiny home on a foundation could technically serve as an ADU.

Councilor Hudson stated I think one of the things Councilor White was worried about is people finding a loophole with the owner living on the property. But let's say you own a home, you built an ADU to rent then you moved away and wanted to rent them both.

Chris Damgen stated the owner would have to reside on the property. That's how the statute is put in place.

Mayor Ryan opened the public hearing at 8:27pm.

Diane Castillo-White, Troutdale resident, stated on page 5-30 in section 5.950(F) it mentions that one off street parking space shall be required for each ADU. Would that be an existing parking space that is designated to that additional structure or would that be a newly created parking space? I believe at 800 square feet there are usually more than one person living within that space so I'm questioning, why not 2 brand new parking spaces required? I'm thinking about livability when people are walking in our neighborhood. One complaint I've been getting is that with the repairing of sidewalks or taking out trees that's effecting some people's discussions on livability. The other thing would be that there's so much complaints about when you do go into Portland the congestion of the parking on the streets is another item that's brought up to the livability of the neighborhoods.

Chris Damgen replied I think one thing we have to ask is, why do we only allow for one for single family homes, for the primary structure? Because that's what the zoning calls for, just one space. Is it fair that if you're doing an additional smaller unit, why should they have the obligation to have 2 additional spaces when the primary structure is only required to have one. On the first part of your question, the way we would handle it if we received

an application is we would look at the property. A space within a garage can be considered off street. Space on the driveway can be considered a space as well too as long as it can accommodate a vehicle. Probably a fair estimate in Troutdale is most single family lots have more than one parking space already. What we would do is we would have an applicant designate on a sketch drawing or an aerial photograph of their home, indicate where their primary dwellings parking space is and indicate where their ADU space would be. The burden would be on the applicant to tell the city and therefore the public where they are parking their vehicles that they're relating to the unit. In a case where there isn't space then it would be incumbent upon the applicant to provide that space in accordance with Chapter 9. Chapter 9 calls for parking spaces to be paved or to be properly sited.

Paul Wilcox stated I was at the Planning Commission meeting in August and it was getting to be about 10:30 and they hadn't gotten around to the public comment portion and I had to be somewhere the next morning so I didn't stick around. I attended their following meeting and addressed these issues during public comment. Mr. Damgen pointed out that they didn't apply because they weren't stated during the public hearing portion so this is going to be the third time I've said this. I have a few issues with this. First one is 5.940, I don't see any basis for requiring owner occupancy. I think Councilor Hudson was kind of alluding to that. If somebody moves out of the primary residence and they rent it out I don't see a problem with that at all. I noticed for accessory structures you're allowing 1,000 square feet which could be something like a very large shop building or 4 or 5 car garage. Then you're only allowing 800 for residence and I'm wondering why you're allowing more in this case rather than the other. The parking requirement, the Planning Commission received a letter suggesting they not have the additional one space parking requirement for the ADU but with Troutdale's minimal parking requirements for a single family home being only one space and as Chris said a single car garage is going to have a driveway so you've got 2 spaces right there. I'm fine with the requiring the additional parking space because I think it's available the way Troutdale is setup.

Taney Staffenson, Troutdale resident and Planning Commission member, stated good evening.

Councilor White stated I noticed it wasn't unanimous. Was there a reason for that member not voting? Did they have any concerns that you can recall?

Taney Staffenson replied not really. There weren't any concerns. I felt that it was a pretty well discussed subject, pretty effectively debated and I think the over-arching challenge is the Urban Growth Boundary. In our opinion that's really the piece that's driving prices the way that they are now. This comes down from the mother ship as Senate Bill 1051 and we're obligated to work with it. I felt personally that we did the best we could with what we had to work with. We looked at parking and the State suggests that you don't require any off street parking for ADU's. We have an issue with parking now where we have a higher standard than what Metro requires. So we tend to push back on the parking side of it and we felt it was necessary to require one.

Mayor Ryan closed the public hearing at 8:38pm.

7. PUBLIC HEARING / RESOLUTION: A resolution defining the area for calculating the changed property ratio.

Erich Mueller, Finance Director, stated the public hearing portion needs to occur tonight in order for us to be in compliance. The staff report that was included in the packet is slightly updated from the previous meeting. I tried to clarify or elaborate on some of the questions that were raised. Also in my phone conversation with the Homebuilders Association this afternoon I noticed that as part of my preparing the document I did a little bit too quickly of a cut and paste. I've got at least one error on page 3 of 5 of the staff report. I used an example and on the second bullet point I've got the wrong assessed value. It should have been \$147,000.00 rather than the \$207,000.00. I apologize for the confusion there. As I had mentioned 2 weeks ago, this doesn't affect existing properties. This relates to new properties that are added to the tax rolls. For Troutdale it would be for new properties added to the tax rolls effective at the next assessment snapshot which is at 1:00am on January 1st. So for any property that would go onto the tax rolls for Troutdale effective this coming January 1st forward we would have a changed property ratio that would be calculated based on Troutdale as a community rather than the ratio being overwhelmed by the huge property values in Portland overwhelming the overall calculation in the County wide number. This provides for equity and comparability within our community acknowledging that it's different than Portland or Gresham or Lake Oswego. Exhibit A applies to all different property classes.

Ray Young stated this is not really a revenue issue. It's an equity issue. Erich's done a great job both last time and tonight of explaining in detail what it really means. The real reason to approve it is the current Troutdale residents are being treated unfairly by the current system. And if you don't approve the changed property ratio then citizens will continue to be treated unfairly in comparison to new homes. So what we're doing by the changed property ratio is making sure that people who come into this city and build new houses or build new industrial land are paying taxes on the same or similar assessed value that you personally are paying on your home. Councilor White was concerned about what the Homebuilders Association thought and over the last 2 weeks I have had 3 phone calls with them, they've reviewed the staff report, talked with Erich on the phone and they said it sounds fair to them. They don't have a problem with it. It's not going to impact their construction costs at all for new homes or remodels and it does make the property tax system work fair for Troutdale residents.

Councilor White stated I feel like the new homes are like apples to oranges compared to an older residence with a big lot. I think there's definitely a lot of variables but I appreciate Council indulging me with the extra time. I learned a lot.

Mayor Ryan opened the public hearing at 8:46pm.

Mayor Ryan closed the public hearing at 8:46pm.

MOTION: Councilor Ripma moved adoption of a resolution defining the area for calculating the changed property ratio. Seconded by Councilor Lauer.

VOTE: Mayor Ryan – Yes; Councilor White – Yes; Councilor Allen – Yes; Councilor Hudson – Yes and Councilor Ripma – Yes and Councilor Lauer – Yes.

Motion passed 6-0.

Councilor White asked, what cities were eligible for this?

Erich Mueller replied when Gresham took the lead on it and took it through legislature there was a lot of negotiation back and forth. Essentially how they're choosing to implement it, they provided it so that it was available to cities in Multnomah County. The expectation is that in the coming legislative that it's likely to get expanded. Currently only Gresham and Wood Village have adopted it.

8. RESOLUTION: A resolution approving the Collective Bargaining Agreement with Employees represented by AFSCME Local 3132.

Erich Mueller stated we briefed the Council in an executive session 2 weeks ago. There's a wide range of articles and provisions in the bargaining agreement that covers the relationship between the City as the employer and employees. I think there were 20 of the 30 some odd articles that were modified through the negotiation process as well as the appendices. The AFSCME Council 75 is what governs the Oregon organization and Local 3132 is the Troutdale employees local AFSCME Council 75. The prior collective bargaining agreement was for 3 years and was to run through June 30th of 2018 based on the public employees collective bargaining act. The existing remains in place as a default until a successor contract is agreed upon by the parties. The membership voted last Wednesday to ratify the tentatively agreed collective bargaining agreement that the 2 bargaining teams reached. Before the contract can become effective City Council has to adopt the tentative agreement that the union has ratified. We've had a significant amount of turnover in the last couple of years and wages have been a consistent issue. It's part of why we're addressing the cost of living increases in the contract. The cost of living adjustment is 3.75 for July 1st 2018 retro to now. Part of that is driven by the fact that we got behind because during the fiscal years 2009-2010, 2010-2011 and 2011-2012 the City and the Union had agreed to a zero COLA. That effectively put us behind a lot of other comparative jurisdictions. As their wages continued to move forward we've been trying to play catchup. One of the other challenges whereas we don't have any positions that we actually pay minimum wage for, the last few pages of the contract lay out the wage tables. Our wage tables build from the bottom up and part of when the legislature made the changes to the minimum wage law, minimum wage went up 15%. And then July 1st of this year it went up another 6%. Those things have impact on the wage scale, it pushes all the relative wages of comparator jobs upward. That's part of what we're trying to address in the contract as well as a number of the other provisions.

Councilor White stated I think we have a really great staff and the culture and the work environment has greatly improved with the addition of Ray Young.

MOTION: Councilor White moved adoption of approving the collective bargaining agreement with employees represented by AFSCME Local 3132. Seconded by Councilor Ripma.

VOTE: Mayor Ryan – Yes; Councilor White – Yes; Councilor Allen – Yes; Councilor Hudson – Yes and Councilor Ripma – Yes and Councilor Lauer – Yes.

Motion passed 6-0.

9. STAFF COMMUNICATIONS

Ray Young stated on October 16th, we will have a meeting that evening and it's a joint work session with the Sandy Drainage Improvement Company. We will have a good discussion about the future of the Sandy Drainage Improvement Company and the levees so I encourage you to get that on your calendar. We are going to start the meeting at 6:00pm so we will have dinner for you. Good news on Imagination Station. Despite the fires and the like that took away some of our parts, those have been remedied. The parts should be here by this weekend and Mark Leather's team will be here next week on Monday to start the final phase of finishing up Imagination Station. You'll see information going out about volunteer opportunities for that next weekend on October 6th and 7th. Also, so far we have saved \$15,000.00 in volunteer hours on the contract I believe. The Town Center Open House is tomorrow from 4:00pm to 8:00pm at Troutdale Elementary School. This week tomorrow afternoon, Thursday, Friday and Saturday morning is the League of Oregon Cities Conference in Eugene. Councilor Allen, Councilor White and Planning Commission Chairman Tanney Staffenson are registered and going to be there. Finally, Councilor Allen and guest, Councilor White and guest, Councilor Hudson and guest, Chair Staffenson and guest and Councilor Morgan and guest are registered to go to the TIP benefit dinner at the casino in Ridgefield. That's Saturday night at 5:30pm to benefit the TIP program.

10. COUNCIL COMMUNICATIONS

Councilor White stated we had the 4th Annual Fall Festival of the Arts and it was a huge turnout. The biggest turnout I've seen so it's definitely gaining momentum. I wanted to thank staff. They helped set up the gallery displays and it was really a big help. I wanted to compliment Chris Damgen. I noticed the one-way streets and the angle parking are completed in downtown. It's a huge improvement so thank you and Ray Young.

Councilor Allen stated I'm open to suggestions on LOC if anybody has an opinion on how that voting should go. Also, I am concerned with what I'm seeing in our society as far as the ends justifies the means. I say that because when you're in the military, in countries where that gets out of hand it gets terribly destructive and violent. I just wish our country

would not go in that direction and have respect for different opinions. Just a word of caution.

Councilor Lauer stated I will be gone the 9th and the 16th of October. I will be on a very overdue honeymoon. I will not be calling in. Also, I've been in contact with Evergreen Skate Park. I know that during the election cycle where I was elected when we had our community Town Hall down at Glenn Otto it was brought up that a skate park was on the minds of the community around and that everybody was in favor of building a skate park. I know everyone that was there also stated that they were in favor of building a skate park so I just want to keep that in everybody's minds. I'll hopefully be gathering some sort of presentation and bringing it in front of the Parks Advisory Committee at a later date and bringing some numbers and designs. I think it's something that this community is big enough and young enough and modern enough that I think we can enjoy it. I think the youth and kids can use it for something to have fun to do around where they live.

11. ADJOURNMENT

MOTION: Councilor Ripma moved to adjourn. Seconded by Councilor Lauer. Motion passed unanimously.

Meeting adjourned at 9:04pm.

Casey Ryan, Mayor
Dated: _____

DRAFT

ATTEST:

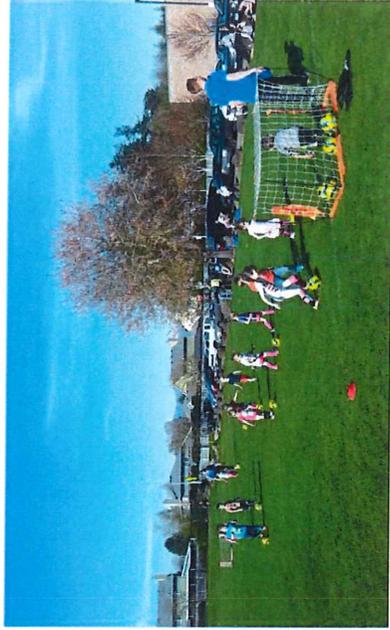
Kenda Schlaht, Deputy City Recorder

City of Troutdale Recreation Program

Dance



Soccer



Year
Round



Taekwondo

Yoga



More programs

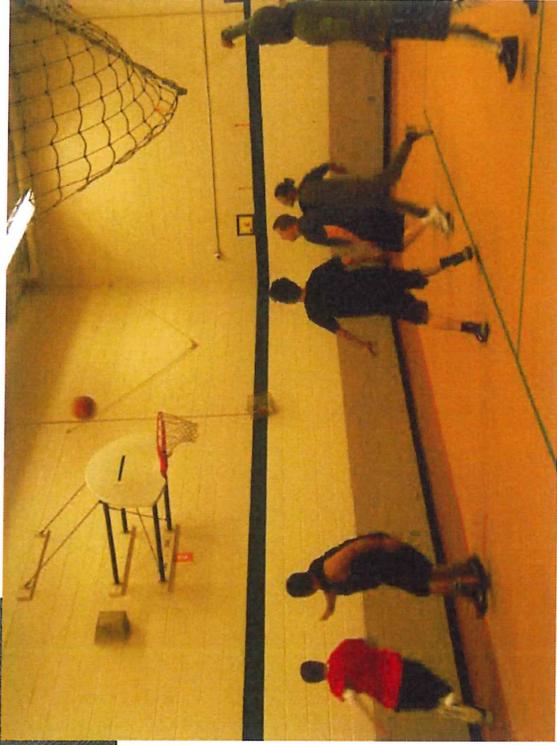


Tai Chi



Theater

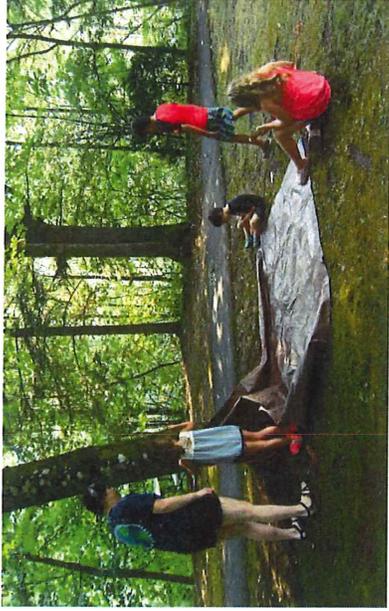
Drop in Basketball



SummerFest



Wilderness Survival Summer Camp

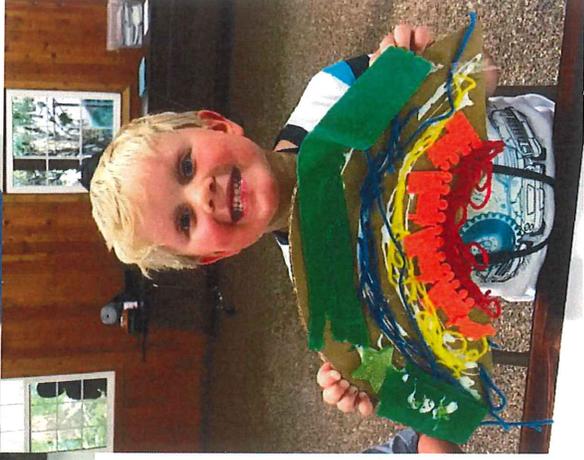


Learning valuable skills and having fun!



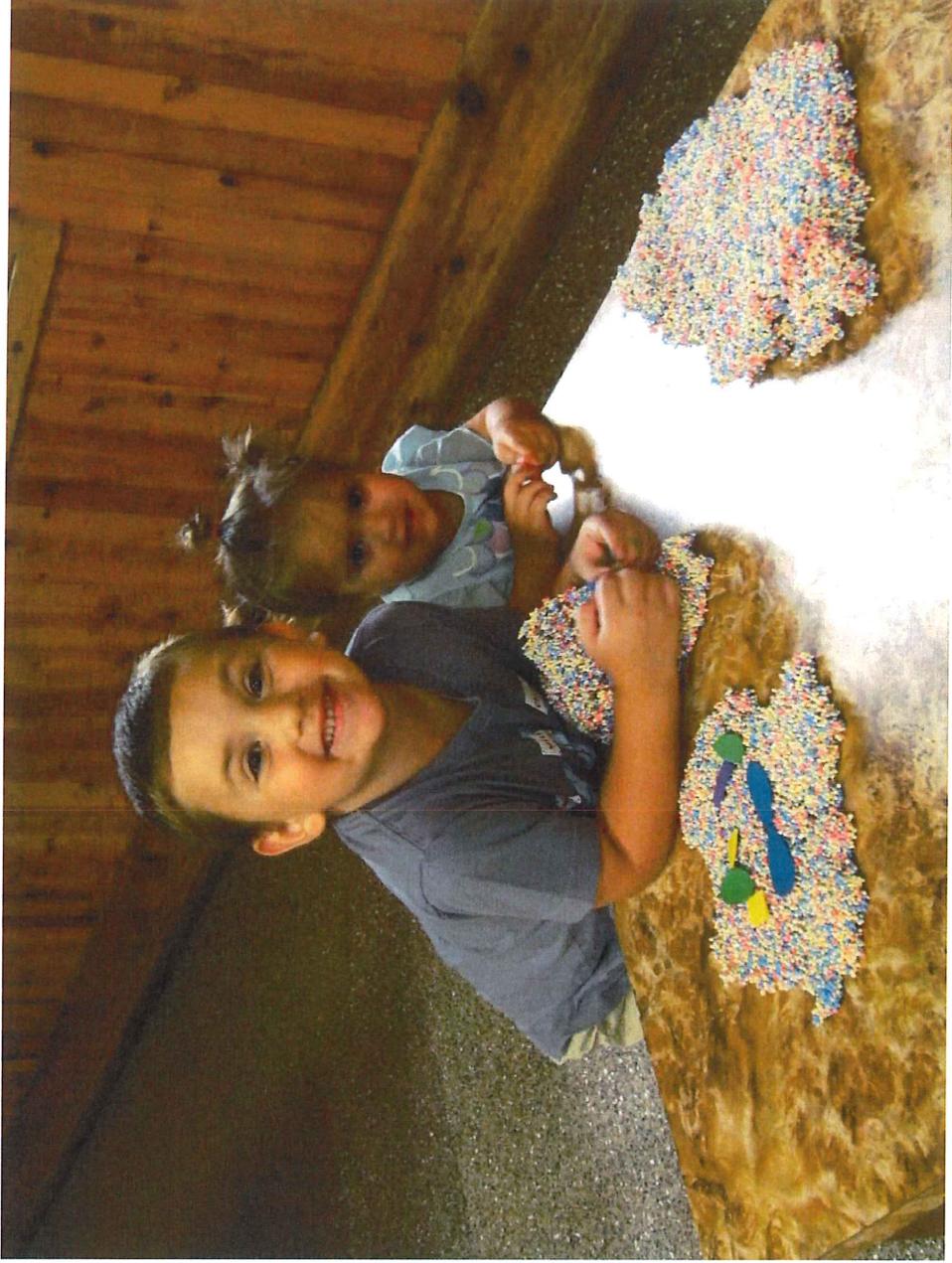
More summer programs

Youth Volunteer Parks Program



Arts & Crafts
Family Time

Building Community



75-02

Accessory Dwelling Units and Structures

Text Amendment | Type IV Procedure

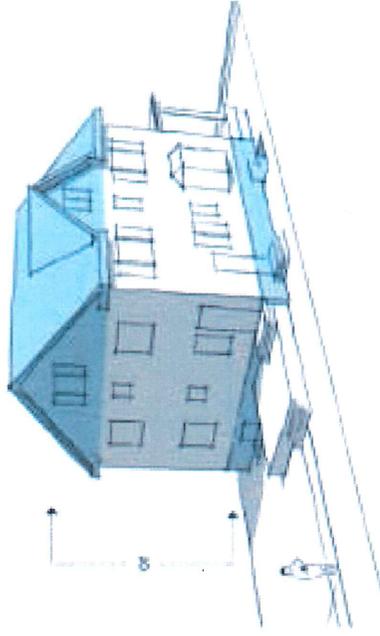
Public Hearing: Tuesday, September 25, 2018
Troutdale City Council | Troutdale Police Community Center

Staff Presentation

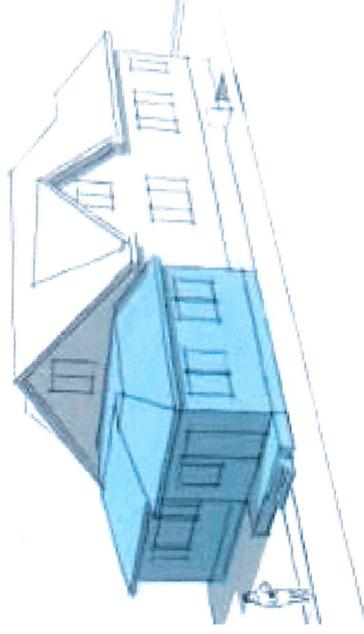
Issues At Hand

- State law (SB 1051) requires certain cities to allow for Accessory Dwelling Units (ADU) in single-family residential zoning districts
 - Reasonable local regulations related to siting and design
 - “clear and objective” standards
- Existing standards did not meet legal obligations of SB 1051
- Text amendment required to bring City into compliance
- Clarification between ADUs and accessory structures (non-residential)

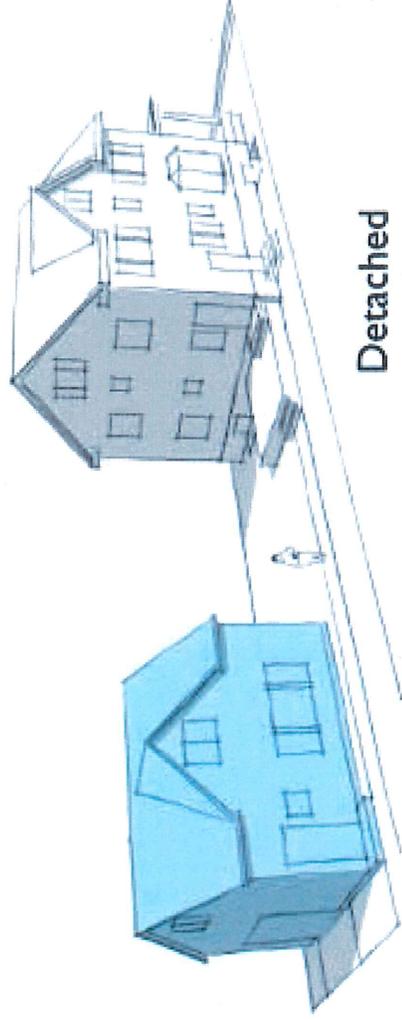
What is an ADU?



Internal



Attached



Detached

Application & Applicable Criteria

What is being requested...

- **Text Amendments to the following Chapters/Sections:**
 - Chapter 1 – Section 1.020 (Definitions)
 - Chapter 3 – Permitted Uses in several sections
 - Chapter 5
 - Section 5.010 – Accessory Structures – amend opening purpose statement
 - **Section 5.900** – Accessory Dwelling Units – replace in its entirety
 - Chapter 6 – Section 6.915 (Site Development Review procedures)

What is **not** being requested...

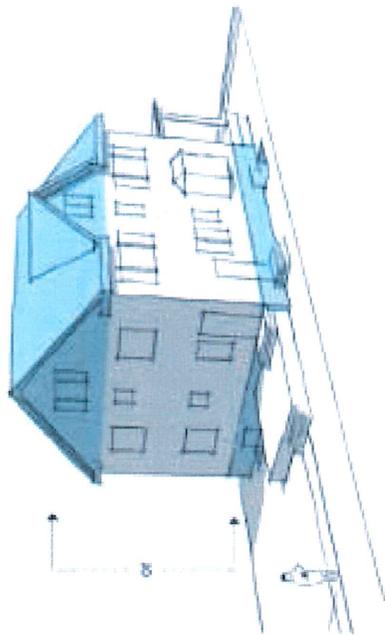
- Any specific Accessory Dwelling Unit application

Application & Applicable Criteria

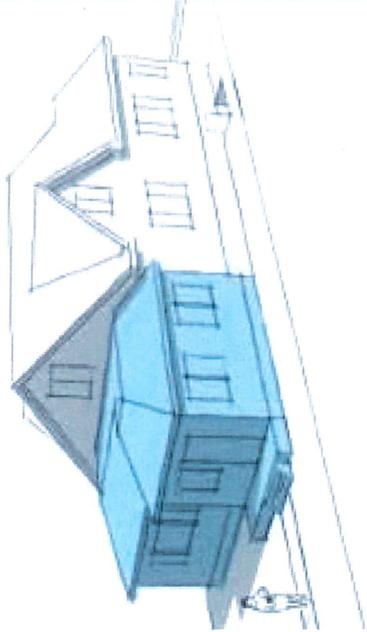
Applicable Criteria

- Comprehensive Land Use Plan
 - Housing Needs Analysis
- Trousdale Development Code (TDC)
 - Appropriate Building & Fire Codes
 - Construction Standards for Public Works Facilities
- Relevant standards in Oregon Revised Statutes (ORS) and Oregon Administrative Rules (OAR)
 - Statewide Planning Goals

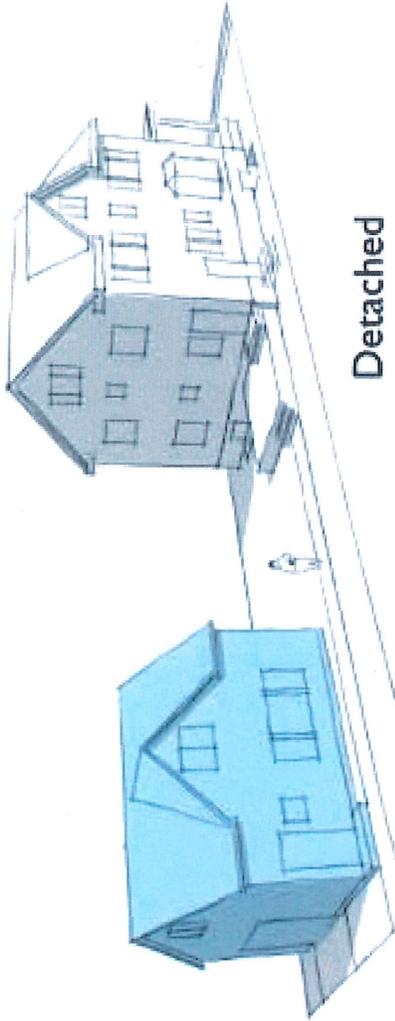
What is an ADU?



Internal



Attached



Detached

Review Procedure

Type IV Quasi-Judicial Procedure

- Public Hearings
- Planning Commission recommendation to City Council (**voted 5-1-1 to recommend**)
- City Council is the decision-making entity

If approved, the next steps:

- Ordinance is formally in effect 30 days from the date of the approval from City Council
- Appeals must be made within 21 days

If there is an appeal...

- State Land Use Board of Appeals

Timeline

- August 15, 2017: SB 1051 signed by governor
- March: rulemaking, model code, and guidance documents provided by Dept of Land Conservation and Development
- March 21: 1st PC work session held
- **May 22: presentation to City Council on upcoming action**
- June 20: 2nd PC work session held
- June 29: Notice to DLCD for Post-Acknowledge Plan Amendment provided
- August 6: Staff Report produced
- August 15: Planning Commission Public Hearing
- **September 25: first City Council hearing**
- October 9: second City Council hearing and vote
- November 8: anticipated effective date

Notification & Summary of Testimony

Agency Testimony

- City of Troutdale Planning & Building
 - Hazard Mitigation concerns

Other Testimony

- Resident (Carol Cottingham)
 - In support of ADUs
- Fair Housing Council of Oregon & Housing Land Advocates
 - Compliance to include language that ties back to Housing Needs Analysis and Buildable Lands Inventory
 - Disagrees with off-street parking requirement

Local Standards

- **Reviews:**
 - Internal or attached: **Type I** (no neighbor notification, staff decision within 30 days)
 - Detached: **Type II** (neighbor notification of 250 feet, staff decision within 45 days)
- Property owners are required to live on property
- Number of ADUs allowed: up to two (2) per dwelling. If two, one must be interior/attached, the other external
- ADUs to comply with primary dwelling setbacks
- Maximum size:
 - 800 square feet or 50% of primary dwelling's floor area, whichever is smaller
 - Interior conversions only: ADU that result from conversion of a floor can occupy the whole area
- Detached ADUs: only located in side or rear yards of the building
- Attached units shall utilize the same exterior material, roofing material, and paint color of the primary dwelling *
- ADUs may not exceed height of primary dwellings
- One off street parking space per unit *
- Meet all health, fire, and building codes

Amendments Proposed to Draft

- Planning Commission
- Staff
- Amend 5.950.D as followed:
- Amend 5.950.F as followed:

Attached units shall utilize the same exterior material, roofing material, and paint color of the primary dwelling. Attached units shall utilize the same exterior materials and roofing materials as the primary dwelling, except in instances where the primary dwelling has an exterior or roofing constructed with non-fire resistant materials. In such situations, the applicant may elect to utilize fire-resistant materials to construct attached units."

One (1) off-street parking space shall be required for each accessory dwelling unit, in addition to that which is required for the primary dwelling, shall be provided for each accessory dwelling unit. All designed parking spaces shall comply with applicable standards in accordance with Chapter 9 of this code.

Approval Criteria – TDC 6.1120

A. The proposed change to the Development Code does not conflict with applicable Comprehensive Land Use Plan goals or policies.

The majority of the amendments proposed in this application are not substantive in a way that could affect the Comprehensive Land Use Plan goals or policies. Of the ones that are, only the proposed additions to include shared housing standards would correspond with the Plan. Given that the standards as proposed in the new Section 5.090 were in the previous Development Code which in turn was found to be consistent with the City's Comprehensive Land Use Plan, there are no anticipated conflicts with this amendment. **The criterion is met.**

Approval Criteria – TDC 6.1120

B. The proposed change is consistent with the applicable Statewide Planning Goals.

The text amendment application is a response to Statewide Planning Goals that were modified with Senate Bill 1051, which called for increasing housing variety and opportunities within cities and urban growth boundaries. **A review of the most up-to-date residential buildable lands inventory (BLI) and housing needs analysis (HNA) indicate that the proposed change would not negatively impact the City's future housing capacity and would actually be of benefit. This is because ADUs increase density within the existing built environment, which improves the efficiency of land use in the City and allows for future land to be preserved and more carefully considered for a variety of housing types as called for in the locally adopted Comprehensive Plan. Therefore, the criterion is met.**

Approval Criteria – TDC 6.1120

C. The proposed change is consistent with the applicable provisions of Metro Code.

The proposed text amendments are consistent with several Metro Code provisions and the overall regional housing goals identified in the 2040 Growth Concept. Within the Urban Growth Management Functional Plan [Chapter 3.07] exist two such provisions.

Under **Title 1 Housing Capacity**, Metro requires cities to establish “at least one accessory dwelling unit for each detached single-family dwelling unit in each zone that authorizes detached single-family dwellings. [3.07.120] Furthermore, under **Title 7 Housing Choice**, cities “within the Metro region shall ensure that their comprehensive plans and implementing ordinances include strategies to ensure a diverse range of housing types within their jurisdictional boundaries. [3.07.730] The new standards for accessory dwelling units increase Troutdale’s compliance with these provisions. **The criterion is met.**

Approval Criteria – TDC 6.1120

D. Public need is best satisfied by this particular change.

Previous accessory residential unit structures standards were not clear and objective, which was required by changes in state law. The standards as proposed provide clear standards for applicants to understand and Staff to evaluate accessory dwelling units. The public is able to better pursue constructing additional housing opportunities to the community while being respectful of the community's desire for reasonable regulations to ensure health, safety, and overall quality of life in those areas where the use is allowed. **The criterion is met.**

Approval Criteria – TDC 6.1120

E. The change will not adversely affect the health, safety, and welfare of the community.

The City expects the majority of the accessory dwelling unit applications to be in the form of attached additions to the primary dwelling or in the conversion of a portion of the primary dwelling into a separate unit. Detached units are typically considered to be more controversial due to the visual impact on surrounding neighborhoods. Any detached unit proposal would be reviewed at a Type II level, which would allow the proposal to be reviewed based on the site conditions and offer the surrounding area an opportunity to comment on the application. If concerns about health, safety, and welfare of the community exist for that particular application, they can be articulated and appealed accordingly. Furthermore, the City has placed reasonable standards in place with regards to siting, parking, and construction to ensure the effect of having accessory dwelling units on a property are not disruptive to surrounding properties. **The criterion is met.**

Staff Recommendation

Staff recommends approval of the text amendment application, provided that City Council:

- Provides direction to staff to incorporate the revisions to the draft proposed by Planning Commission and Staff as presented tonight.
- Provides direction to staff to incorporate the revisions to the findings as presented tonight.
- Updated copies of the draft and the findings which incorporates the revisions (and other revisions as discussed) to be supplied at the second reading (Oct 9)

Public Testimony

Public Testimony

Order of Testimony

1. Applicant
2. Proponents
3. Opponents
4. Neutral Parties / Clarifications
5. Requests for Additional Time

Reminder:

- All issues raised by a participant must be sufficiently clear and specific to allow PC and other parties to respond.
- Failure to raise an issue during this public hearing may invalidate a future appeal based on that issue.

DRAFT

MINUTES
Troutdale City Council – Regular Meeting
Troutdale Police Community Center – Kellogg Room
234 SW Kendall Court
Troutdale, OR 97060

Tuesday, October 9, 2018 – 7:00PM

1. PLEDGE OF ALLEGIANCE, ROLL CALL, AGENDA UPDATE

Mayor Ryan called the meeting to order at 7:00pm.

PRESENT: Mayor Ryan, Councilor Ripma, Councilor White, Councilor Allen and Councilor Hudson (7:01pm).

ABSENT: Councilor Morgan and Councilor Lauer (excused)

STAFF: Ray Young, City Manager; Sarah Skroch, City Recorder; Ed Trompke, City Attorney; Chris Damgen, Community Development Director and Erich Mueller, Finance Director.

GUESTS: See Attached.

Mayor Ryan asked, are there any agenda updates?

Ray Young, City Manager, stated we had some revision issues with the public hearing regarding the property up at 242nd and Cherry Park. In consultation with the applicant they requested we postpone it for 2 weeks to the 23rd. They're the ones that kind of control the timeline and they're okay with the delay. We apologize for any inconvenience.

2. PUBLIC COMMENT: Public comment on non-agenda and consent agenda items is welcome at this time.

Reverend Thomas Young, Cherry Park Presbyterian Church, stated I want to say I'm appreciative of all that you do on our behalf, for your time and for your service. I want to give a shout out to all of our churches in Troutdale. The way they minister to their own members and also address the needs of our community and how they try to do what they can do in helping the homeless, providing utility help and help with rent. We have a really good assortment of churches here in town. I want to share what we are doing at Cherry Park Presbyterian Church in affiliation with another church, River of Life. Reverend Young passed out a brochure (a copy can be found in the meeting packet). We've been looking at demographics of our community and felt we could be doing more with senior citizens. We are creating beginning the month of September an adult senior center community. This is on Wednesdays and we offer a lunch and it is free. We hope that that will really fulfill a need in our community and we would welcome any of you to come and meet those

folk and sit down and chat with them. We offer exercise programs and an assortment of other programs that we feel will really meet the needs of some special people in our community and in the area. You're always welcome to join in those programs.

Greg Johnson, Troutdale resident, stated I live on top of the hill here. We have some concerns about the parking on our street. We had the garbage man ask if I could do anything and I told him I would come to the City Council and talk to you. I'll show you the pictures. We have on the weekends 22 cars parked in this area. The garbage man can't even get down our street at all. We had to take all our garbage cans up front because he can't get down the street. Then we had a medical emergency a year and a half ago and the ambulance couldn't get down the street. The ambulance crew had to wheel her out because the street was all blocked up. As you go up 257th there's a fire lane with chains across it and for some reason somebody has cut the chain on the bottom. I called the code enforcement lady 3 times for the last month and a half and nothing has been done about it. I have pictures of the chain hanging down.

Mayor Ryan stated I've seen in certain Cities during trash day they post signs that say no parking between this and this time on a certain day. Is that something that we can explore? We'll look into this because that's concerning.

John Wilson, Troutdale resident, stated I have to say something that my employer has requested that I announce. I am not speaking for them. Somebody from the City Council has gone to talk to him wondering about why I'm able to come up here and speak under the First Amendment. Whoever that may be, our newspaper supports the First Amendment and I just have to make sure that you know that I don't speak for them. This last summer, August 5th, the Troutdale Cruise-In held their 15th annual cruise-in in downtown Troutdale. We had over 140 cars with some new restrictions from the Sheriff's Department which we worked around. Some of the merchants said that in the morning that they made their whole day through breakfast so the rest of the day was a bonus. One of the restaurants said that even though we disrupt their regular customers that we bring them new customers throughout the day. One of the other restaurants is going to have to add in a beer garden to handle the amount of traffic that we support down there because we're down there all day. So we're good for the economy. One of the antique stores had one of their biggest days ever. We're good for Troutdale. We bring about 1500 people into the downtown area besides the 140 cars that we had this year. We filled every inch of the road up and we're going to have to rework that to try to fit some more cars in next year. If the Metro Enhancement Program has a logo we would like to get it so we can put it on our information next year. We did put the City's logo on there. At the end of all the expenses we are giving to Sno-Cap \$2425.00. For every dollar they get they can buy 20 pounds of food. The other \$2425.00 went to the Randall House for children's cancer research. We would like to give you this certificate of thank you. Our intention is to keep it downtown this next year. We would like to thank the City of Troutdale for supporting our causes over the last 15 years and hopefully next year some of you guys can show up. We had Ray come down. It's a good time. KISN-FM was down there to provide the music and they go way back into the 50's.

3. CONSENT AGENDA:

3.1 MINUTES: August 28, 2018 City Council Regular Meeting.

MOTION: Councilor White moved to approve the consent agenda. Seconded by Councilor Ripma.
Motion Passed 5-0.

~~**4. PUBLIC HEARING / ORDER:** An order approving the site development review and variances for a proposed development on two parcels with an approximate total area of 8.82 acres located at the intersection of NE 242nd Drive and Cherry Park Road.~~

This item was postponed until October 23, 2018.

5. PUBLIC HEARING / ORDINANCE (Introduced 9/25/18): An ordinance to adopt Text Amendments to Chapters 1, 3, 5, and 6 of the Troutdale Development Code.

Chris Damgen, Community Development Director, stated this is the second hearing for the text amendments related to accessory dwelling units (ADU) and accessory structures. Effectively, no changes from your first hearing. We have not received any additional public testimony in the period in between. What we wanted to do tonight is just remind you of the findings of fact which are currently on the screen. There were 5 criterion points which basically in your findings as part of the ordinance you would have to agree to. They were attachment A in your packet. On the attachment B were the clean copy versions of the effected sections. There were 4 effected Chapters. The first Chapter is effectively our definition section. There were 2 pages in there where that was going to be changed. The term accessory structure, that is not for ADU's. These are things like sheds or anything else that is not really designed for habitation. We edited that section to remove any suggestion that it could be used as such. It's basically a little bit more clarified definition, that's .04. At .39 accessory dwelling, this is effectively a statewide definition that came from the Oregon Revised Statutes so this is the definition that we are incorporating into it. Chapter 3 effectively what that does is that updates the single family zoning districts where we now have to allow for ADU's to be permitted uses. Again, just because a use is permitted doesn't mean it can be done because there's still criteria. Chapter 5 is really where the meat of it is. I'm going to actually go back to that. I'm going to skip ahead to Chapter 6 real quick. Chapter 6 is where we talk about what sort of procedure we utilize to review ADU applications. What we did is a Type II application shall be used to review all of the following and we talk about new ADU's that are detached from the primary dwelling. If you recall from 2 weeks ago we differentiated between detached accessory dwelling units, basically stand-alone ones that are typically found in backyards, and attached which would be an addition to your house or an interior conversion. Those ones would be through a Type I procedure and the detached ones would be through a Type II. Up ahead, we talk about Type I applications which are non-notified staff decisions. Bouncing back to Chapter 5, there were 2 sections in which were replaced in their entirety, 5.010 that talks about non-accessory dwelling unit structures. It also clarified a discrepancy between the original development code language and the building code language where it talked about a certain square footage requirement as far as when an accessory structure can exceed. So 10 feet or 200 square feet in size if located within that. Previously we had 120 and we brought it up to 200 to match the building code. And

then really the main purpose we were here, the action mandated by the State and that was the ADU section which has been replaced in its entirety. We've added the local provisions as recommended by Planning Commission and those are incorporated in Attachment B in your draft. We have not received any additional testimony from State or Metro, who usually go through our text amendment reviews so we feel confident and we still recommend approval.

Councilor Hudson asked, what was the rationale behind 5.940 that requires owner occupancy? We touched on it just a little last week but I'm still not seeing the rationale on why we would want to insist on that in the code.

Chris Damgen replied that's a good question. That was one that was pretty spiritedly debated at Planning Commission. The rationale there, I think, was concerns about long term property maintenance and code compliance issues. One of the thoughts was that a property owner either living in the primary structure or even living in the ADU and renting out their primary structure that if you had owner occupancy there would potentially be better care for the property because they're there. That if there were code issues they could be maybe responded to more quickly or they would be easy to find. I think it came down to questions on long term property maintenance.

Councilor Hudson stated I would be interested to know what other members of the Council think on this issue. In general, it seems that we should allow people to do with their property as much as we could reasonably let people do like rent it, sell it, as it is theirs.

Councilor Ripma stated there's a very excellent reason I think for requiring it. It's to preserve neighborhoods in Troutdale. Without the requirement of owner occupancy people will buy up the houses, put in a couple units and the neighborhood starts to become apartments. It would make a profound difference throughout the City. I think it would be very destructive. It's a good and reasonable requirement. Allowing an owner to put in an extra unit if they want to, is permitting them to do what they want with their property. Allowing people who aren't owners to just buy up homes and turn them into triple units, the whole neighborhood will just go downhill very quickly. I think we would be doing a disservice to the citizens of Troutdale if we don't keep that requirement.

Councilor Allen stated I could not have said that more eloquently. I fully agree with what Councilor Ripma is saying. Chris, I noticed you put in here SB1051 is prompting this code amendment. Concerns on the law should be directed to the legislative delegation. This is not a staff driven initiative. It bothers me when the state legislature overreaches. It's almost as if they're pretending to be City Councilors now. The way a community wants to live and development, they should have some consideration and some choice. On Chapter 5.010(B)(4), I was wondering if you can help me understand this a little bit more in what this lingo means. It talks about private vehicle storage on corner lots.

Chris Damgen replied that would be in the confines of not accessory dwelling units but accessory structures so if you had a detached garage or a carport. It's not really covered

by the ADU thing. We wanted to update this section. That particular subsection has not really changed from what has always been in the code.

Councilor Allen stated I mentioned this last time. One off street parking space shall be required for each ADU. I know very few families that just have one car. Can we make that more?

Chris Damgen replied you could do that. I think the only push back you would have from a lot of folks, including staff, is you only require one space for an actual dwelling unit for a house.

Councilor Ripma stated that isn't what we're here about, Rich. Keep in mind, it would look like we are unnecessarily burdening the opportunity to build ADU's if we required two for them. We could always go back and change the code for single family homes if we want to visit that someday. By adopting one off street parking place per ADU we're embracing what the state has required but going to two I think we would get in trouble. I favor the staff proposal.

Councilor White stated one concern is that the garage could become the accessory dwelling. So we could lose the garage. An idea might be if someone is going to build two accessory dwellings on their property you could assume that it's going to be a bigger than average lot if they can fit two. If they're going to do two and have the house that we require the second accessory dwelling would have two spaces. I think we're going to have more public comment like we had tonight if people start building a lot of these.

Ray Young stated, Mayor, what I would suggest is that we take it to Planning Commission to talk about this issue on the long term because I understand what Councilor Ripma is saying. If we require 2 for the ADU but we only require 1 for a whole house it would be like we're trying to suppress ADU's and I'm not sure the State would be thrilled with that.

Chris Damgen stated if I can add to that. Right now you have no standard because the existing standard is not in compliance with state law. If you do want to consider that or have the Planning Commission consider that we can refer the matter back to them but you may still want to consider action tonight and perhaps you can entertain a future text amendment that might look at that particular issue in addition to maybe the single family number of spaces required.

Mayor Ryan stated as we move forward that would be my suggestion, that we move forward on that and we can make changes later. We can fine tune some stuff down the road. We could give it to Planning Commission to look at with some direction from us.

Councilor Ripma stated if we don't pass this we have no standards and people will be allowed under State law to apply for an ADU with no parking. They'll be able to challenge it and the whole ordinance will fall. This is a good ordinance the way it is.

Mayor Ryan opened the public hearing at 7:38pm.

Mayor Ryan closed the public hearing at 7:38pm.

MOTION: Councilor Ripma moved to adopt the ordinance to adopt Text Amendments to Chapters 1, 3, 5, and 6 of the Troutdale Development Code. Seconded by Councilor Hudson.

VOTE: Councilor White – Yes; Councilor Allen – Yes; Councilor Hudson – Yes; Councilor Ripma – Yes and Mayor Ryan – Yes.

Motion passes 5-0.

6. RESOLUTION: A resolution providing for current FY 2018-19 Budget Transfers and Appropriation Changes.

Erich Mueller, Finance Director, stated this resolution is for current year transfers of existing appropriations I outlined in your packet. As I mentioned during the Budget Committee meetings in the spring, we would need to bring this forward to the Council once we concluded the negotiations with AFSCME. As we discussed in the executive session a few weeks ago and discussed at the Council meeting 2 weeks ago, we've concluded those negotiations. The Council adopted and approved the collective bargaining agreement for the 3 year period beginning July 1st of this year. Then this budget transfer is what's necessary to fund the collective bargaining agreement that was approved by both the Council and by the union membership when they ratified it. It provides the funding for those various items, for the transfers, the reclassifications, the COLA and it transfers existing budgeted contingency.

MOTION: Councilor White moved to adoption of the resolution providing for current FY 2018-19 Budget Transfers and Appropriation Changes. Seconded by Councilor Hudson.

VOTE: Councilor White – Yes; Councilor Allen – Yes; Councilor Hudson – Yes; Councilor Ripma – Yes and Mayor Ryan – Yes.

Motion passes 5-0.

7. DISCUSSION: A discussion to consider pursuing an Ordinance Banning Plastic Bags.

Ray Young stated if you've read the papers recently in East County there has been a discussion among different Cities about the possibility of banning single use plastic bags that every store uses. They have the tendency to really clog the recycling machines where the recycling goes to. So many people put them in the recycling because they're a plastic bag so they put them in with plastic. They have a tendency to wrap around all the machinery and really clog up the works at a recycling center. This issue is for you to talk about. Is this an issue that you would like City staff to devote energy to, to create a model ordinance for you to consider and pass. Or is it an issue that you say, no, we don't want to deal with it in Troutdale. Or is it something that Metro or the State may be pursuing at

some point and maybe we just do a resolution where we support Metro's attempt to come up with a regional solution. If you look through the materials one of the things staff is concerned about primarily with a local ordinance is, if you look at the ordinances in there, every City has a different type of ordinance. They put different requirements on merchants. It's possible to come up with something workable if the Council wants to. But that's the discussion point, Mayor. I tried to come up with all the reasons to say no and all the reasons why you really need to be doing this so that you could read through and understand the issues in the arguments and see where they hit you. I'm sure Councilor Craddick would like to say a few words because Metro is our metro area solid waste king.

Mayor Ryan stated Nathan from the County is here and Shirley is here. You guys are welcome to come up if you'd like. I'll tell you where I stand with it. I have not been in favor of a City of Troutdale ban on plastic bags. Before anybody thinks I love plastic bags, I don't love plastic bags. I really struggle with what the role of the City is at this level. I believe it should be more of a Metro or State wide ban. I have been pretty vocal with my opinion of not having a ban in Troutdale. The main reason is I really try to make sure that the focus of what we do at the City isn't overreaching. I have not had a citizen ever come up to me and say we have to ban plastic bags and that's who we're here representing. Another thing is, no discussion has taken place with Safeway or Albertsons or Home Depot and all that. So what I don't like is our businesses could be greatly challenged in our City and not anywhere else. But if Metro was going to do it I would be in favor of it. If the County was going to do it I would be in favor of it. I'm just not in favor of us Councilors moving forward on an issue. One thing I did offer to do is until Metro or the County did something I offered to, as the Mayor, go into the schools to work with service groups to maybe purchase reusable bags for the City to hand out. Have Girl Scouts or Boy Scouts in front of grocery stores, work with the grocery stores to educate people on what happens with plastic bags and why we should use this as a way to be more proactive and help change behavior instead of just saying this is how we're going to do it. I also struggle a little bit with the fact, where does it stop? Now it's plastic bags and all of a sudden it's like I don't think you should be able to drink a 44 ounce soda. Where does it stop in the City? That's where my thoughts were. I would like to see plastic bag use go away. I would like to see it in all Cities go away but I like to try to encourage people to change behavior, at a City level.

Councilor Allen stated I notice that they give you a plastic bag for your bag of potato chips. I hear what you're saying there and I think that's well thought out. The only thing I might add to that is I wonder if we would want a representative or somebody with staff or Council talking with Metro on the subject just expressing what the local interest position might be.

Shirley Craddick, Metro Councilor, stated I want to thank you for having this discussion because this kind of discussion is what's creating the support to be able to get the legislature to consider this. I agree with you that it's really best if this is done Statewide. It's really not fair to the industry, the grocery store industry in particular, to have each City have their own code. It's not an efficient way to do it by any means. The very nature of this discussion is really helping begin that discussion Statewide. Nathan's done a huge

amount of research, Commissioner Stegmann's office has. I'll be glad to talk about the next steps that Metro's considering.

Nathan Clark, Commissioner Lori Stegmann's Office, stated we have looked into doing an ordinance County wide but unfortunately we do not have the enforcement aspect that is needed to be able to efficiently make sure grocery stores are complying. We're going to continue to educate and help out. We were actually approached by Wood Village originally. We have been meeting with their Mayor and he had said that this is on the work plan. We were also receptive to what our constituents and what our jurisdictions had asked. Then Mayor Tosterud the same thing. So that kind of spurred the 3-City wide. On average in Oregon, 300 plastic bags are used per person per year so that adds up to quite a bit. One of the big things we learned in our office was the amount of costs that the recyclers pay for plastic bags jamming their system. One of the recyclers was telling us that they have to put on Kevlar gloves and a jacket to go in with a box cutter and cut out the plastic bag when it jams up the sorting system and that equals roughly about \$60,000.00 a year in labor and maintenance. That was just one aspect on top of the environmental aspects.

Councilor Hudson stated I'm very much in favor of passing this as a City but then also having passed the intention to pursue such a ban to team up with Fairview and Wood Village and make our ordinances as similar as possible for the very sake of consistency. This is one of the things that I really liked when Mayor Tosterud proposed this 3-Cities approach is that consistency is important for our businesses and for our residents. The more that we 3 Cities could work together to create consistency the better. That won't happen if we don't go forward with it because then Fairview is going to pass theirs and Wood Village is going to pass theirs and we will lose the momentum of the 3-City cooperation that we have the potential to do and we'll just have yet another ban in Fairview and Wood Village. Then they wouldn't necessarily gel well with Portland or Milwaukie either. If we could be part of this and get together I think we could create a lot more consistency. I think it's really important that we as a City do something on this now because it creates the momentum for the State and other agencies like Metro or the County to be able to move forward with this because of that inertia that is building. If we were to decline to do anything about it I worry that we would be sending the signal that this isn't something that people want. And I do think this is something people want. As soon as the Outlook article came out on Facebook the comments were lit up with people from Troutdale who said, yes, finally this is happening. There were also people who were saying this is a bad idea and it was very instructive to see what they didn't like about it and I was taking notes as to objections to it. A lot of those objections were built on misinformation. People were saying, why would they ban plastic bags, you just recycle them. Which we've seen doesn't work. They want to get rid of all of our plastic bags, what am I going to put my trash in? A lot of misunderstanding of what the intent would be. These would be the single-use plastic shopping bags. The plastic bags that we buy for things like kitchen trash specifically, those end up going in the trash. Not in the recycling and not in the blackberry bushes and not in the trees or rivers, lakes and ocean. I see single-use plastic bags as an important item to target as part of the general environmental approach but they're special in their need for us to remove them as opposed to other

things that would also be nice to get rid of eventually. Now is really the time and it makes sense as Wood Village and Fairview are making this push that we join in with them and we keep that ball rolling. I think if we put this off it will flounder or we will show up late to the party when other Cities have already done the right thing. I wanted to take a moment and address the question of whether it's in a City's purview to ban something like this. Certainly as precedent goes it is. Because look at all the Cities, 11 so far, that have done this. Legally and from a precedent standpoint it certainly is within our purview. As far as philosophically, I worry that waiting for someone else to take care of something would be worse. And it's definitely, I think, the job of an elected body to step in when public behavior needs to be changed in a big way that voluntary activity can't do.

Councilor Ripma stated I agree with the Mayor. I don't like plastic bags either. I would favor us endorsing some action by the State, something like that. I do not think it's a good use, Zach, of City resources and staff resources. We'll end up having lots of hearings trying to craft an ordinance with a lot of staff time of the City of Troutdale to have an ordinance that probably will be coordinated with Wood Village and Fairview but it isn't going to be the same as the other Cities in the State. I agree there's momentum right now doing it but that doesn't mean, this is my feeling, that Troutdale should invest staff time and public hearing time in adopting our own ordinance. In my opinion, it needs to happen on a State level or even regionally. I think the regional approach should be to support State action. We're all in this together and it doesn't end at the Gresham line or outside of Troutdale. It's a worthy cause and it's a good cause. But for the sake of amount of investment in time and capital and our staff resources in trying to set up a City ordinance and enforce it, I don't favor the City doing it. I would favor some sort of statement of support for State action or even national action or both. I would favor not moving forward with this.

Councilor White stated I like what both of you are saying. You had some really good points in there, Zach. I also know how busy our staff is right now and I can see that they are spread thin. If there's someone else willing to take this on I think it really is Metro's wheelhouse. They've done a lot with recycling and other similar topics. I'm not in favor of the plastic bags. I hate seeing them on the blackberries and especially in Troutdale.

Councilor Allen stated I don't like it when the State over reaches into development code because Cities should have some say in the way they want to live. I do believe that things like this are needed at a more regional or State or national level. I can't help but wonder if maybe Metro might be willing to host with their staff representatives that want to attend from the various Cities and work on what direction we should go or what direction we should advocate for from the State. That would be nice.

Shirley Craddick stated you may remember in 2011 there was an effort at the State legislature to ban plastic bags. This was brought forward by Senator Mark Hass and it was going well and they had the support of the grocery industry but the grocery industry at that time said, we'll support this but we want people to pay 5 cents for the paper bags. That's when things started taking a left turn. The chemical industry got involved and they weren't able to get support. So it's been put on hold since then. We went and met with

Senator Hass and asked if he would consider taking this on again and he said no way. The Metro Council will be adding this as one of our legislative goals so that gives guidance to our lobbyist to advocate for this. I've also learned from State Representative Carla Piluso that she is entering legislation to ban plastic bags this legislative session. That's really good news. That's where we really need your help at that point to come and help testify and help her with that. In addition to that Metro Council President Elect Lynn Peterson will be moving forward. If the legislature doesn't pass this then Metro will take that responsibility for the region after the legislative session is over.

Mayor Ryan stated I think we're all in agreement we don't like plastic bags. I would help Carla do that. I would like to see this Statewide and at the minimum Metro wide.

Councilor Hudson stated we have a few months before the session begins. I think we could prepare a letter of endorsement from our City to the legislature by then.

Ray Young stated I am writing an email to Sarah to put on the agenda a motion to approve a letter of support that the Oregon Legislature ban plastic bags this session.

8. STAFF COMMUNICATIONS

Ray Young stated you may have heard that the legislature passed new rules requiring Cities to have meetings to discuss affordable housing within the communities. The State has given us better direction on that and they do not require that the City Councils actually have those hearings. We can allow the Citizens Advisory Committee to do that. So we tentatively have scheduled on December 5th the Citizens Advisory Committee to hold a public hearing on the causes and impact of the lack of affordable housing. We will refer that to the Citizens Advisory Committee for now. We closed committee applications for City Committees but we're always willing to take more. So if you know of anybody who you think should be invested in the City, have them send in an application. We do have to set an additional meeting for interviews and we're tentatively looking at December 6th. We thought it would be best to get it done before we get into the holiday season. I'm really excited that we are really close to ending the Imagination Station construction. This Saturday will be the actual last day that we will get to use volunteers. We have sent an email to all the people who volunteered before. We would love to get them there. Free lunch, 9am to 4pm, come and help. I don't know if you've been there recently but it's really starting to look cool. I'm really excited to see the rubberization poured. We'll schedule an open house for it after it gets done. Some of you have probably read emails that there's some concern that in the process we were negligent in not considering the historical elements inside the design that honored Native American influence in this area. That is absolutely correct. We did not. And so we are now pursuing with the Parks Advisory Committee what we can do to include an honoring part of the Imagination Station. Councilor Hudson has been real involved in this process this week with the individual in the City who has been concerned about it and he is willing to continue to work with me and staff to make sure that we honor the Native Americans as best we can at Imagination Station. It has historical elements in it that honor the community. We'll be working on that. Finally, next Tuesday we have a work session. We're going to be talking about Levee Ready Columbia. We're going to be having a joint work session with the Sandy Drainage

Improvement Company in this room and it will be set up like a Budget Committee meeting so we can get all the Councilors around together. You'll be getting fairly large packets on Thursday. Please do your best to read what you can to get up to speed on the issues. We'll have dinner for you at 5:30pm.

9. COUNCIL COMMUNICATIONS

Councilor White stated I had the pleasure of attending the League of Oregon Cities convention in Eugene along with Councilor Allen and Ray Young. There were some good take-aways. One of the things I thought I'd mention is BottleDrop has a new program where you can register your non-profit and you can get a special bag to donate your cans and bottles to that non-profit. It's a really good way to bolster up those non-profit groups.

Councilor Allen stated in the region you hear more and more the idea of workforce housing, affordable housing and accessory dwelling units being pushed. I just want to caution on that. Initially after the downward pressure is felt on prices, the market will adjust to what the market will bear. In the long term, I believe what you're going to end up with is people just living in more sub-standard housing. We know about this stuff, we've experienced it in the 1800's, history repeats and why we never learn I do not know. I think a more planned approach to devolvement is a much better idea. Quality of housing and a good standard of living for all people should really be the goal.

Councilor Hudson stated election season is approaching and the campaigns that are under way are already well into the thick of it. I want to say before I begin what I'm about to say that I am very happy that we're going to have Councilor Ripma back with us for another 4 years. I'm also very happy that Jamie Kranz is going to be sitting in that chair starting in January. I think both of them are either fantastic Councilors or will make a fantastic Councilor. Nothing I say following is to say that I wish they would not be a Councilor. In fact, if I were to pick 3 candidates out of the 5 running they would be 2 of them. But we've ended up with what I think is a silly situation in the way that our candidates are distributed and I think it's because of the way we have our vote by seat instead of top 3 voting. One of the things that came up at the meeting for top 3 voting was the idealized sense of we have 3 incumbents running and anyone who wants to try to displace those incumbents is welcome to take them on one on one. That lets people stick their flag where they believe and stand up to an incumbent and the incumbent can face down their challengers. What we've ended up with though this time is an incumbent running unopposed and then 2 open seats. Of the 4 candidates who filed for those 2 seats 1 has filed unopposed and the other 3 are running for the vacant seat. So out of 3 total seats and 5 candidates voters only get to choose 1. Voters are not choosing 3 candidates. The other seat, the fact that it's unopposed, was it a fluke? Was it a roll of the dice? Everybody lined up for 2 possible seats and 1 got one candidate and 1 got 3? Or were they challenging particular incumbents? I happen to know in some cases that's not true and that they were not challenging particular incumbents because of what they were thinking. In that case, how did we end up with this odd distribution? Even if we split it up 2 versus 2, who would make that decision about which 2 should run against which 2? I think the voters should choose at least ideally from 5 but at least from 4 challengers who are not currently incumbents and the challengers have decided to file for shouldn't end

up limiting the choices of the voters as to which combination they get in. Which is why I think at some point we really should reconsider how we elect to seats in this Council.

Councilor Ripma stated I've already disagreed with you too much tonight, Zach. There were a lot of reasons why this election was kind of strange. I think everybody thought Councilor Morgan was going to run again. People thought maybe Councilor Allen was going to run again too. Now why nobody filed against me, I don't know. Maybe they just like me.

Mayor Ryan stated the Reynolds football team is 5 and 1. That's nice. They do play second rate Clackamas this weekend. But what probably will happen is they'll lose and end up 5-2 but favored in the rest of their games and end up maybe 6-2 or 7-2 which is a huge accomplishment. I've been to every home game this year and it's been fun. The school spirit's been really amazing. I encourage everybody to support our high school and our sports and our schools. They have a lot of really good things. I know our men's water polo team is undefeated and I think maybe in the women's. The men's soccer team is doing well and the women's varsity team is doing well too. I've had the honor to work with Principal Blakely about the trash that seems to show up the first day of school and it stops at the last day of school on Cherry Park Drive. I believe that they're doing a really good job of trying to combat that. I do encourage you guys to email the principal and email superintendents to put some pressure on them to make sure. It looks really bad and that's my favorite road in Troutdale. It was disappointing to see. I did go to a soccer game yesterday and I saw the cross country team cleaning the whole school grounds and even up into Imagination Station. The word's getting out that the citizens are voicing their concerns about the trash.

10. ADJOURNMENT

MOTION: Councilor Ripma moved to adjourn. Seconded by Councilor White. Motion passed unanimously.

Meeting adjourned at 8:26pm.

Casey Ryan, Mayor

Dated: _____

DRAFT

ATTEST:

Kenda Schlaht, Deputy City Recorder

CITY OF TROUTDALE

City Council – Regular Meeting
7:00PM

Tuesday, October 9, 2018

PLEASE SIGN IN

Name – Please Print	Address	Phone #
Gregg Rebecca Johnson	1248 SW 10th Way	(503) 492-6564
Diane J. White	1225 E HISTORIC	503 868-1408
Jan Wilson	Troutdale	
Tom Young	BOX 375, TROUTDALE	
Nathan Clark		
Bill Wilcox	TROUTDALE	
Shirley Ladd	Metro Council	

Agenda Item #3.2
11/13/18 Council Meeting

September 18, 2018

Shirley Craddick
Metro Councilor
Metro Regional Center
600 NE Grand Ave.
Portland, OR

Representative Chris Gorsek
Oregon State House of Representatives
900 Court St. NE, H-486
Salem, Oregon 97301

Senator Laurie Monnes Anderson
Oregon State Senate
900 Court St NE, S-211
Salem, OR, 97301

Re: Single Use Plastic Bags

Dear Councilor Craddick, Representative Gorsek and Senator Monnes Anderson,

On behalf of the Troutdale City Council and the Citizens of Troutdale, I am writing you to ask for your action on the issue of “Single Use Plastic Bags”. Over the last decade many jurisdictions across the United States, and many countries around the world, have passed laws restricting the use of plastic bags by retailers for the use of their customers. We believe it is time for this issue to be appropriately addressed on a regional or state level.

Many arguments have been made over the years supporting or opposing the use of single use plastic bags. Whether you believe they are an environmental hazard because of their creation, or because of their disposal, we believe our environment would be better off without them.

However, we do not believe that a “city by city” approach, which has been the path in Oregon over the last decade, is appropriate. Not only do some cities have bans on the bags and others no ban at all, even the cities that have bans are inconsistent in their rules and application. This is unfair not only to the consumer, but to the retailer as well.

We believe it is time for either Metro or the Oregon State Legislature to pass laws and regulations that have broad application on the issue of banning or restricting retailers and consumers from using single use plastic bags. It is time to stop the “piece meal” approach to the problem, and for one of our broader public

bodies to finally weigh in on the issue and bring consistency to the rules that ban and/or govern their use. We strongly encourage you to take action within your deliberative body to push for a broader solution to the problem.

Please contact me if you have any questions or concerns.

Sincerely yours,

Hon. Casey Ryan
Mayor

Cc City Council
City Manager

CITY OF TROUTDALE

Proclamation

NATIVE AMERICAN HERITAGE MONTH – NOVEMBER 2018

Whereas: Native American Heritage Week began in 1976 and recognition was expanded by Congress on August 1, 1990, designating the month of November as National American Indian Heritage Month; and

Whereas: From time immemorial, Oregon Lands have been home to many Native peoples including members of Oregon's nine federally recognized tribes: Burns Paiute Tribe; Confederated Tribes of Coos, Lower Umpqua and Siuslaw Indians; Coquille Indian Tribe; Cow Creek Band of Umpqua Tribe of Indians; Confederated Tribes of Grand Ronde Community; Klamath Tribes; Confederated Tribes of Siletz Indians; Confederated Tribes of the Umatilla Indian Reservation; and Confederated Tribes of Warm Springs; and

Whereas: The Troutdale area served as the home to Cascade and Clackamas people because of the rich natural resources provided by the Columbia and Sandy Rivers which border our city; and

Whereas: The Indigenous people of Oregon have made tremendous contributions to culture, history and environment of the State of Oregon; and

Whereas: As Oregon's indigenous people have shared our state, so has the history and culture of our great nation been shared with indigenous peoples; and

Whereas: The contributions of indigenous people have enhanced the freedom, prosperity and greatness of America today; and

Whereas: Indigenous people's varied customs and traditions are respected and celebrated as part of a rich legacy throughout the United States.

Now, Therefore: on behalf of the Troutdale City Council, and myself, it is with great pleasure that I proclaim the month of November 2018 as Native American Heritage Month in the City of Troutdale and encourage all Troutdadians to join in this observance.

Dated this 13th day of November 2018

Casey Ryan, Mayor



CITY OF TROUTDALE



STAFF REPORT

SUBJECT / ISSUE: Discussion Multnomah County Alternative Intersection Feasibility Evaluation Historic Columbia River Highway/Buxton Road

MEETING TYPE:
City Council Regular Mtg.

STAFF MEMBER:
Steve Gaschler

MEETING DATE:
November 13, 2018

DEPARTMENT:
Public Works

ACTION REQUIRED:
Information / Discussion

ADVISORY COMMITTEE/COMMISSION RECOMMENDATION:

PUBLIC HEARING:
No

N/A

Comments:

STAFF RECOMMENDATION: Authorize the Multnomah County to implement Concept 1

EXHIBITS:

A. Kittelson & Associates Technical Memorandum dated October 12, 2018

SUBJECT / ISSUE RELATES TO:

Council Goals

Legislative

Other (describe)

Reduce congestion at peak

hours for intersection.

ISSUE / COUNCIL DECISION & DISCUSSION POINTS:



Reviewed and Approved by City Manager:

BACKGROUND:

Currently this intersection operates below the acceptable standard. City staff requested Multnomah County evaluate the intersection and make recommendations for improving the operation of the intersection. The County contracted Kittelson and Associates who are transportation planners and engineers, who specialize in this type of work. Kittelson met with City and County staff on several occasions to define the scope of the analysis and review their preferred concepts. Staff is seeking Council support for the preferred concept discussed in the attached memo. This is an interim solution until a signal can be installed in the future.

PROS & CONS:

Pros:

- Improved intersection operation
- Reduced wait time for vehicles
- Improved safety at intersection

Cons:

- Loss of one parking location

Current Year Budget Impacts: <input type="checkbox"/> Yes (<i>describe</i>) <input checked="" type="checkbox"/> N/A
Future Fiscal Impacts: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> N/A
City Attorney Approved: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> N/A
Community Involvement Process: <input type="checkbox"/> Yes (<i>describe</i>) <input checked="" type="checkbox"/> N/A

TECHNICAL MEMORANDUM

Multnomah County - Alternative Intersection Feasibility Evaluation - Historic Columbia River Highway/Buxton Road

Date: October 12, 2018 Project #: 23136
To: Multnomah County
From: Darren Hippenstiel, PE; Hermanus Steyn, PE; Molly McCormick and Nick Platte
cc: ODOT

As requested by Multnomah County, Kittelson & Associates, Inc. (Kittelson) conducted concept development and operational assessments for the Historic Columbia River Highway/Buxton Road intersection, in Troutdale.

This memorandum summarizes the operational assessments completed in addition to a series of potential design concepts for the study intersection.

OPERATIONAL ASSESSMENTS

The operational assessment for the existing traffic conditions was performed in accordance with the procedures stated in the *2010 Highway Capacity Manual* (HCM 2010) using Synchro 9. In addition, the weekday AM and PM peak 15-minute periods of the system were identified to develop a peak hour factor for a peak 15-minute analysis. For this reason, the operations analyses reflect conditions that are only likely to occur for 15 minutes out of each average weekday AM and PM peak hour. Traffic conditions during other weekday hours will likely operate under better conditions than those described in this report.

The County's level-of-service (LOS) target for intersections in urban areas is LOS D and LOS C for intersections in rural areas. LOS is reported for the overall intersection at signalized intersections and reported for the highest delay movement at unsignalized intersections. *A description of level-of-service criteria is contained in Appendix A.*

Traffic Volumes and Existing Traffic Operations

The County provided turning movement counts for the Historic Columbia River Highway/Buxton Road intersection on a typical weekday in October 2017 during the morning and evening peak periods. School was in session on the day the traffic counts were collected. The traffic counts revealed a morning peak from 7:15 to 8:15 AM and evening peak from 4:00 to 5:00 PM. The intersection of Historic Columbia River

Highway and Buxton Road is currently stop-controlled for northbound traffic and free flow for eastbound and westbound traffic. There are no dedicated turning lanes at any of the approaches

Exhibit 1 (see page 8) shows the existing traffic volumes and operations at the Historic Columbia River Highway/Buxton Road intersection. Both weekday AM and PM peak hour conditions are shown, including the highest movement volume to capacity (V/C) and the corresponding critical movement (CM). Under existing conditions, the Historic Columbia River Highway/Buxton Road intersection operates acceptably during the AM peak hour and operates at a LOS F during the PM peak hour. *Appendix B includes the traffic count data, and Appendix C includes the traffic analysis worksheets under existing conditions.*

Traffic Signal Warrant Analysis

In June 2016, the City of Gresham completed a traffic signal warrant analysis for the intersection based on the warrants included in the 2009 Manual on Uniform Traffic Control Devices (MUTCD). Based on the outcome of the analysis, a traffic signal was not warranted due to the traffic volumes not meeting the specified volume thresholds. *The memorandum for the study is provided in Appendix D.*

As part of this assessment, an updated traffic signal warrant analysis was performed using the 2017 traffic volumes provided by the County. Based on the updated analysis, the eight-hour (Warrant 1) and four-hour (Warrant 2) traffic volume warrants are met, and a traffic signal is warranted at the intersection. The peak hour traffic volume warrant (Warrant 3) is also met, however, it is not considered applicable for this context. *The results of the traffic signal warrant analysis are provided in Appendix D.*

Due to the high capital cost and maintenance requirements of a traffic signal, alternative improvements for the intersections were developed and evaluated. These are documented hereafter.

CONCEPT DEVELOPMENT AND EVALUATIONS

In addition to the operational assessment for the existing intersection, four concepts were developed and analyzed for the intersection under existing traffic conditions. The concepts were developed at a March 2018 meeting between the County and Kittelson staff. *Concept sketches for the four options are provided in Appendix E.*

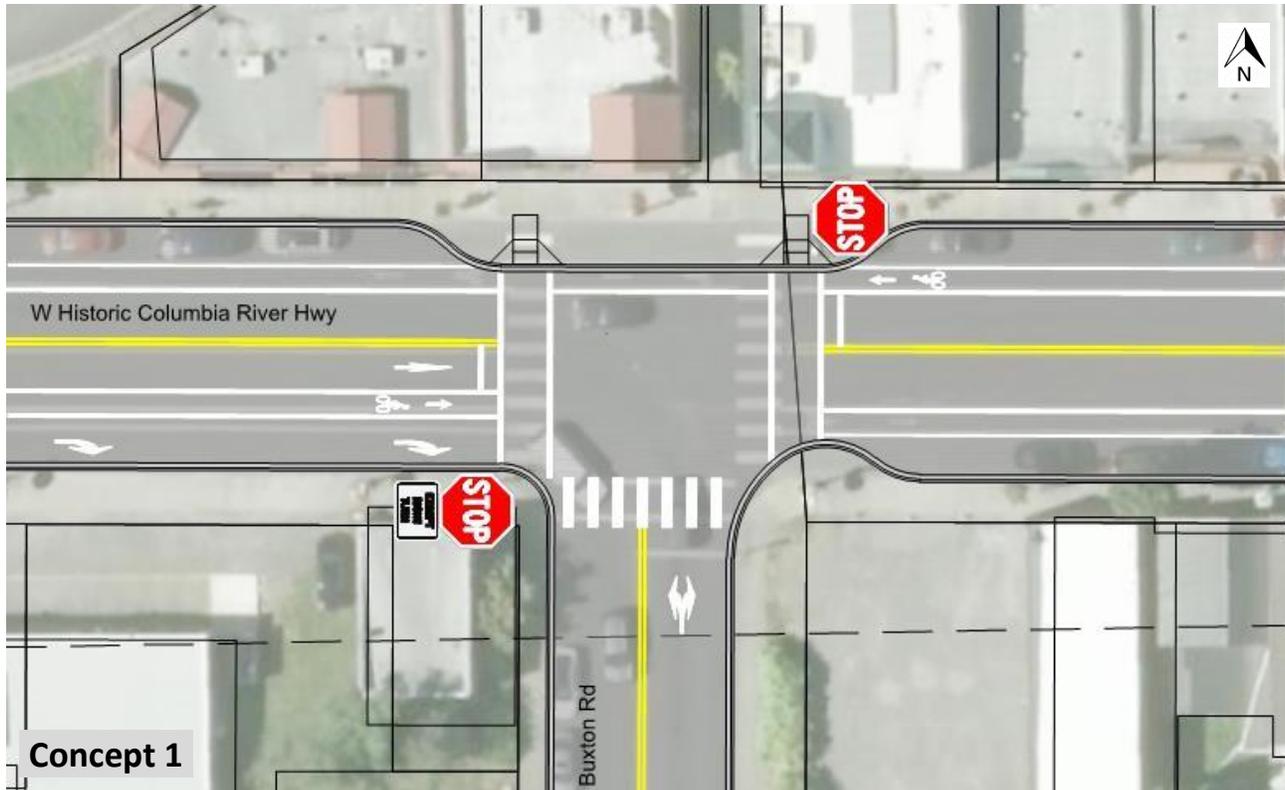
Concept 1: New Traffic Control and Additional Eastbound Right-turn Lane

The first concept includes the addition of an eastbound right-turn lane and two-way stop-control provided on the east and west legs of the intersection. With the addition of the eastbound right-turn lane, the right-turn movement can be free by including signage on the eastbound stop sign to exclude the right-turn from stopping. *A conceptual sketch is provided in Appendix E.*



R1-10P

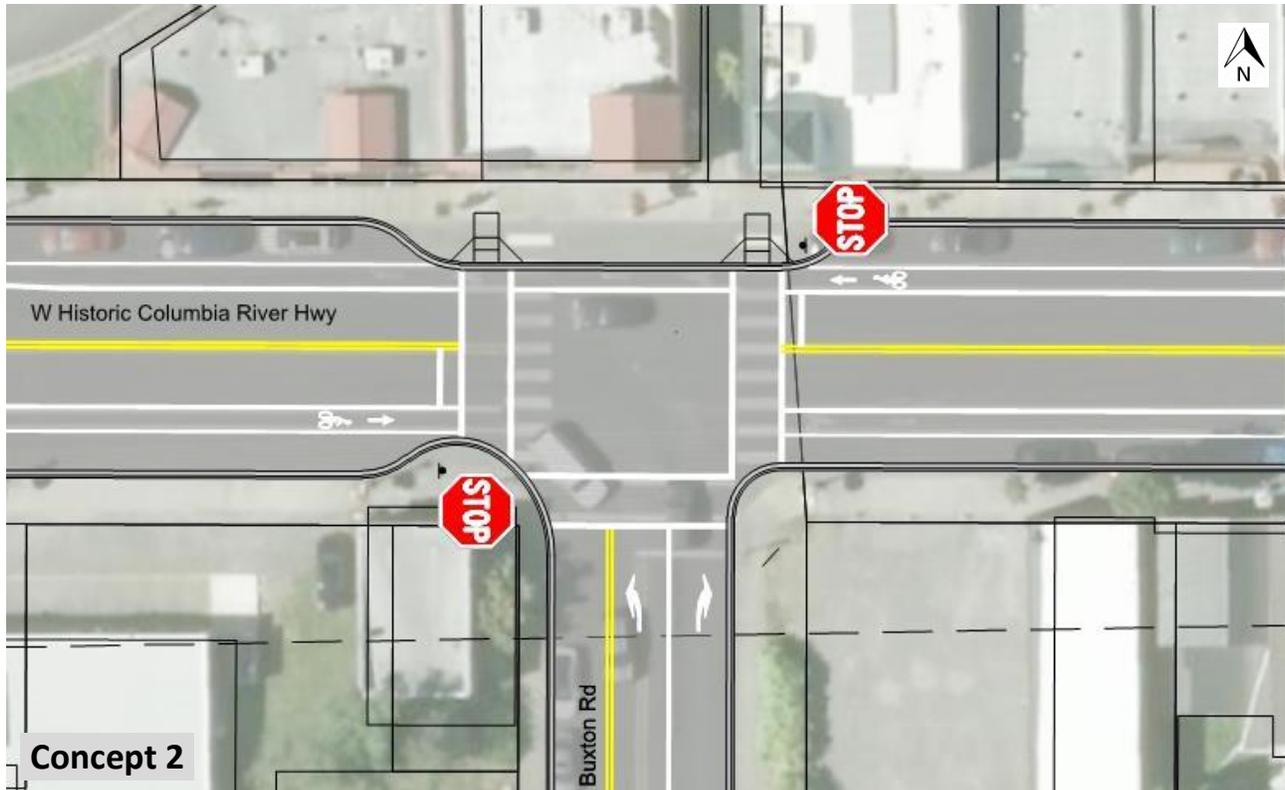
**Supplemental STOP Sign
Plaque from MUTCD**



In order to study the intersection with the eastbound through movement as stop-controlled while the eastbound right-turn movement is free, Sidra was used to complete the assessment. As shown in Exhibit 1 (see page 8), Concept 1 is anticipated to operate acceptably under existing weekday AM peak hour conditions, but does not meet the performance threshold under existing weekday PM peak hour conditions.

Concept 2: New Traffic Control

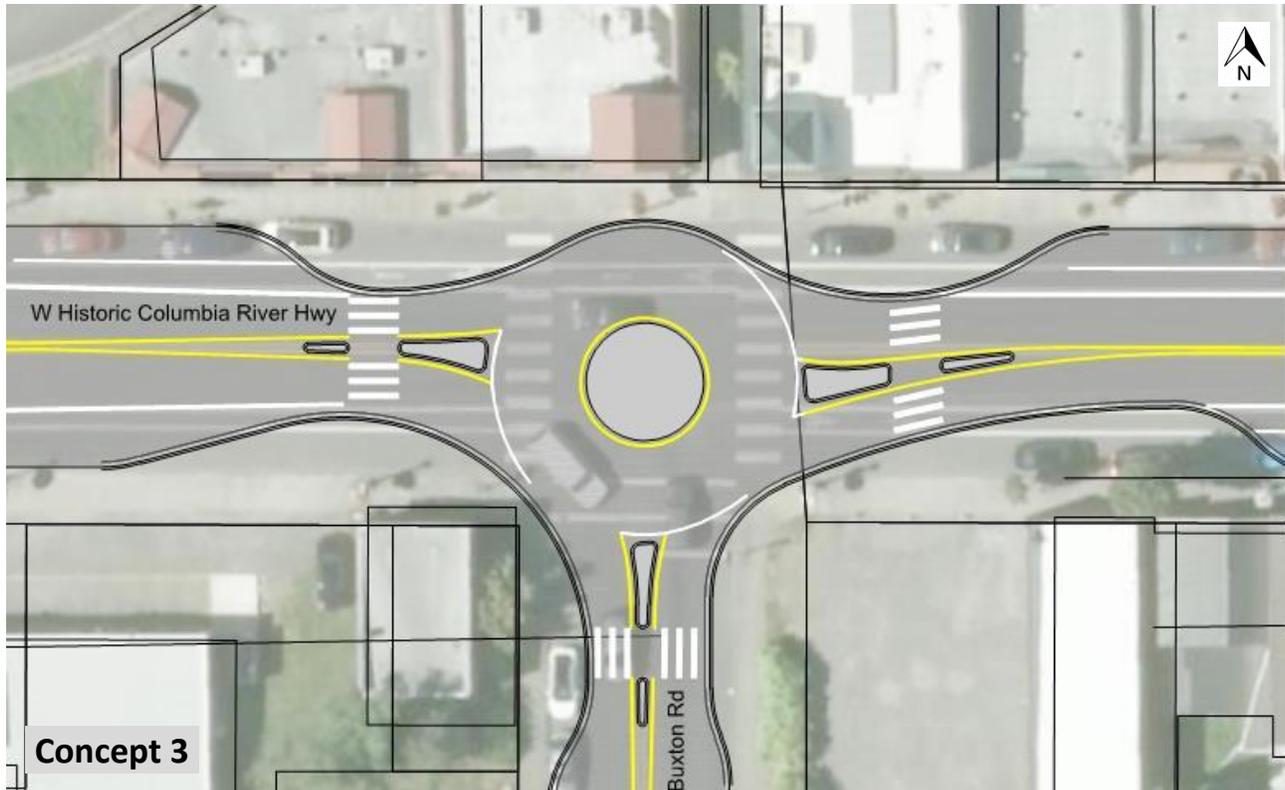
The second concept maintains the existing lane configurations on the east and west legs and adds a northbound right-turn lane. Two-way stop-control is provided on the east and west legs of the intersection while the northbound approach is uncontrolled. A *conceptual sketch is provided in Appendix E.*



Highway Capacity Software (HCS) 2010 was used to evaluate this unique intersection configuration. As shown in Exhibit 1 (see page 8), Concept 2 is anticipated to operate unacceptably under both existing weekday AM and PM peak hour conditions.

Concept 3: Mini-roundabout

The third concept considered was a mini-roundabout. A mini-roundabout is a type of intersection that can be used in physically-constrained locations in place of stop-controlled or signalized intersections to help improve safety and operations. Mini-roundabouts operate in the same manner as larger roundabouts, with yield control on all entries and counterclockwise circulation. Due to its small diameter, the central island of a mini-roundabout is fully traversable to accommodate heavy vehicles. *Appendix E shows how a mini-roundabout may fit on the site.* The mini-roundabout will have limited impact on the existing infrastructure, but will need coordination with local business owners to regarding on-street parking and driveway access.



Mini-roundabouts are most effective in lower speed environments in which all approaching roadways have posted speed of 30 mph or less and 85th-percentile speeds of less than 35 mph near the proposed entrance line. The existing speed limits on Historic Columbia River Highway and Buxton Road are 20 mph and 25 mph, respectively. Therefore, additional traffic calming measures are not anticipated to be needed in conjunction with the installation of a mini-roundabout at this location.

Additionally, mini-roundabouts are generally recommended for intersections in which the total entering daily volume is no more than 15,000 vehicles. As shown in Exhibit 1 (see page 8), the total entering volume during the weekday PM peak hour is 1,095 vehicles. The total entering daily volume can be estimated by multiplying the weekday PM peak hour total entering volume by 10 (weekday PM peak hour typically represents approximately 10% of average daily traffic [ADT] in an urban road side environment). Thus, an estimate of the total entering ADT of the intersection is approximately 11,000 vehicles, which is below the 15,000 threshold.

Regarding the operational performance of a mini-roundabout, the HCM does not contain a specific methodology for evaluating mini-roundabouts. Additionally, there has been no empirical research on the capacity of mini-roundabouts conducted in the U.S. to date. Some studies have suggested that a mini-roundabout typically has a capacity threshold that is approximately 60 to 70 percent of a standard single-lane roundabout's capacity. Therefore, a target volume-to-capacity (V/C) ratio of approximately 0.65 should be used as a general threshold for a mini-roundabout. Kittelson conducted an operational assessment of this roundabout alternative using the methodology presented in the *Highway Capacity Manual 6th Edition* (HCM 6) using Sidra. As shown in Exhibit 1 (see page 8) and Table 1, the mini-

roundabout is expected to operate under the maximum capacity threshold under existing peak hour conditions. *The analysis worksheets are included in Appendix F.*

Table 1 Sidra Output Summary for Mini-roundabout Concept for Historic Columbia River Highway/Buxton Road Intersection

Scenario	Approach	v/c		Average Delay (sec/veh)		LOS	
		AM	PM	AM	PM	AM	PM
Concept 3: Mini-roundabout	Northbound	0.37	0.25	6.3	5.7	A	A
	Westbound	0.16	0.17	5.9	4.9	A	A
	Eastbound	0.17	0.62	4.1	11.0	A	B
	Intersection Overall	0.37	0.62	5.7	8.9	A	A

Future Growth Sensitivity Assessment

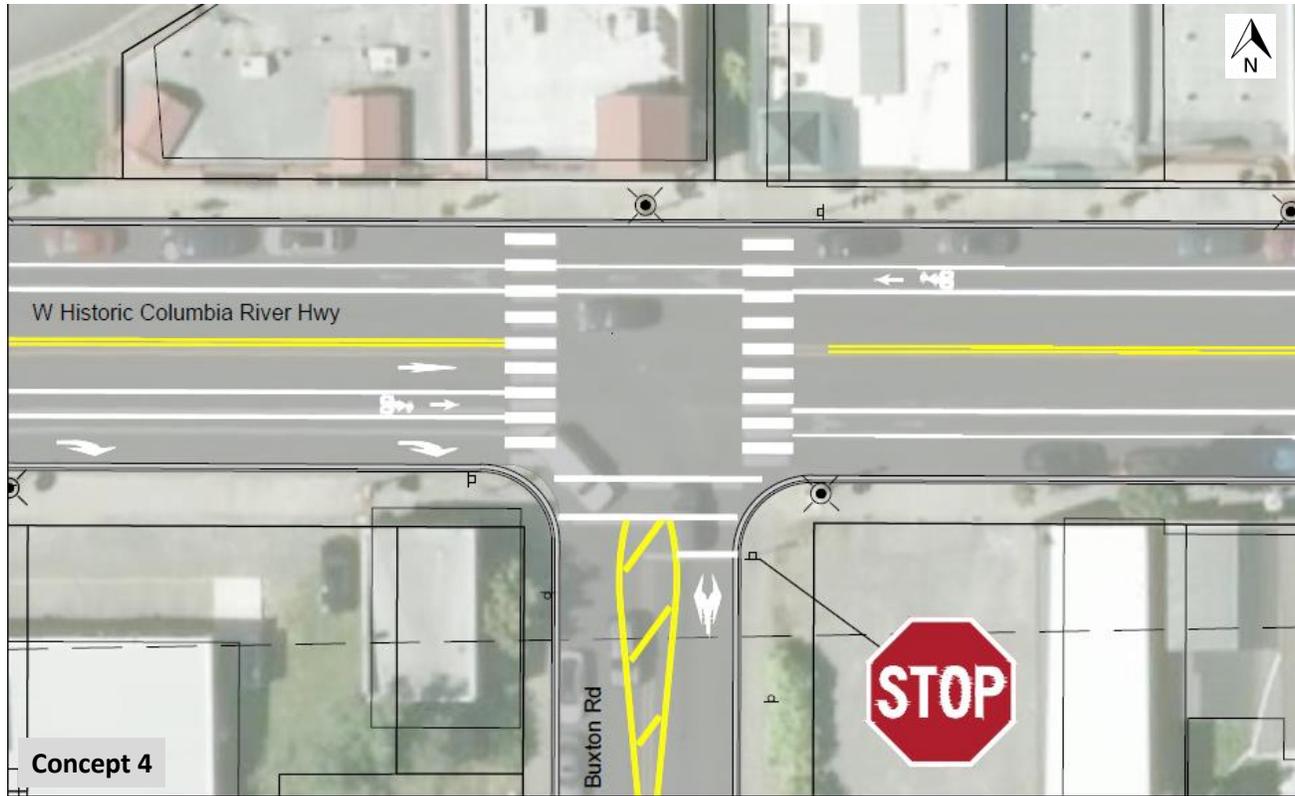
A sensitivity assessment was completed to understand when a mini-roundabout would reach capacity. As shown in Table 2, the target V/C ratio of 0.65 would be reached after five percent growth on all movements under the weekday PM peak hour conditions and a V/C ratio of 0.70 would be reached after 12 percent growth on all movements. *The sensitivity analysis worksheets are included in Appendix G.*

Table 2 Sidra Output Summary for Mini-roundabout Concept Sensitivity Assessment (Weekday PM Peak Hour)

Scenario	Approach	v/c		Average Delay (sec/veh)		LOS	
		5% Growth	12% Growth	5% Growth	12% Growth	5% Growth	12% Growth
Concept 3: Mini-roundabout Sensitivity Assessment	Northbound	0.26	0.29	6.0	6.3	A	A
	Westbound	0.18	0.19	5.0	5.3	A	A
	Eastbound	0.65	0.70	12.1	13.8	B	B
	Intersection Overall	0.65	0.70	9.6	10.8	A	B

Concept 4: Additional Eastbound Right-turn Lane

The fourth concept for the intersection includes the addition of an eastbound right-turn lane with the existing traffic control. This concept includes additional striping modifications along the south leg to accommodate heavy vehicle and bus turning movements. *A conceptual sketch is provided in Appendix E.*



Synchro 10 was used to complete the intersection operational assessment. As shown in Exhibit 1 (see page 8), Concept 4 is anticipated to operate acceptably under existing weekday AM peak hour conditions. LOS E is reached under existing weekday PM peak hour conditions, which does not meet the performance thresholds. However, the operations are improved when compared with the existing intersection configuration and control. *The analysis worksheets are included in Appendix F.*

An all-way stop-controlled (AWSC) intersection was investigated for Concept 4. The results indicate acceptable traffic operations during both weekday AM and PM peak hours. However, increased queuing and delay along HCRH will occur, with queues likely to spill back from the eastbound right-turn into the eastbound through movement during the weekday PM peak hour.

It is recommended as an interim to configure the intersection as shown in Concept 4. The County and City should continue to monitor the intersection and re-evaluate the conditions in the future.

Exhibit 1: Historic Columbia River Highway/Buxton Road Intersection Existing and Conceptual Lane Configurations, Traffic Control Devices, and Operations under Existing Traffic Conditions



SUMMARY OF FINDINGS

Kittelson conducted a study of the Historic Columbia River Highway/Buxton Road intersection in Multnomah County to assess operational and geometric concepts for four options.

Under existing conditions, Concept 1 (New Traffic Control and Additional Eastbound Right-turn Lane) and Concept 4 (Existing Traffic Control with Additional Eastbound Right-turn Lane) improve intersection operations. Concept 3 (Mini-roundabout) is the only configuration that was assessed that meets County operational performance thresholds. The mini-roundabout can be implemented within the existing right-of-way with limited impact existing infrastructure; however, will impact on-street parking.

Ultimately, it is proposed to implement Concept 4 (Additional Eastbound Right-turn Lane only). This has a low-cost implication, whilst improving existing operations and still allowing free-flow along Historic Columbia River Highway.

Please review the information presented in this memorandum and let us know what questions or comments you may have. We would be pleased to further discuss the study findings.

If you have questions as you review this material, please call us at 503-228-5230.

Appendix A
Level-of-Service Concept

APPENDIX A LEVEL-OF-SERVICE CONCEPT

Level of service (LOS) is a concept developed to quantify the degree of comfort (including such elements as travel time, number of stops, total amount of stopped delay, and impediments caused by other vehicles) afforded to drivers as they travel through an intersection or roadway segment. Six grades are used to denote the various level of service from “A” to “F”.¹

SIGNALIZED INTERSECTIONS

The six level-of-service grades are described qualitatively for signalized intersections in Table A1. Additionally, Table A2 identifies the relationship between level of service and average control delay per vehicle. Control delay is defined to include initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. Using this definition, Level of Service “D” is generally considered to represent the minimum acceptable design standard.

Table A-1 Level-of-Service Definitions (Signalized Intersections)

Level of Service	Average Delay per Vehicle
A	Very low average control delay, less than 10 seconds per vehicle. This occurs when progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.
B	Average control delay is greater than 10 seconds per vehicle and less than or equal to 20 seconds per vehicle. This generally occurs with good progression and/or short cycle lengths. More vehicles stop than for a level of service A, causing higher levels of average delay.
C	Average control delay is greater than 20 seconds per vehicle and less than or equal to 35 seconds per vehicle. These higher delays may result from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.
D	Average control delay is greater than 35 seconds per vehicle and less than or equal to 55 seconds per vehicle. The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle length, or high volume/capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	Average control delay is greater than 55 seconds per vehicle and less than or equal to 80 seconds per vehicle. This is usually considered to be the limit of acceptable delay. These high delay values generally (but not always) indicate poor progression, long cycle lengths, and high volume/capacity ratios. Individual cycle failures are frequent occurrences.
F	Average control delay is in excess of 80 seconds per vehicle. This is considered to be unacceptable to most drivers. This condition often occurs with oversaturation. It may also occur at high volume/capacity ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also contribute to such high delay values.

¹ Most of the material in this appendix is adapted from the Transportation Research Board, Highway Capacity Manual, (2000).

Table A2 Level-of-Service Criteria for Signalized Intersections

Level of Service	Average Control Delay per Vehicle (Seconds)
A	<10.0
B	>10 and ≤20
C	>20 and ≤35
D	>35 and ≤55
E	>55 and ≤80
F	>80

UNSIGNALIZED INTERSECTIONS

Unsignalized intersections include two-way stop-controlled (TWSC) and all-way stop-controlled (AWSC) intersections. The 2000 Highway Capacity Manual (HCM) provides models for estimating control delay at both TWSC and AWSC intersections. A qualitative description of the various service levels associated with an unsignalized intersection is presented in Table A3. A quantitative definition of level of service for unsignalized intersections is presented in Table A4. Using this definition, Level of Service “E” is generally considered to represent the minimum acceptable design standard.

Table A3 Level-of-Service Criteria for Unsignalized Intersections

Level of Service	Average Delay per Vehicle to Minor Street
A	<ul style="list-style-type: none"> Nearly all drivers find freedom of operation. Very seldom is there more than one vehicle in queue.
B	<ul style="list-style-type: none"> Some drivers begin to consider the delay an inconvenience. Occasionally there is more than one vehicle in queue.
C	<ul style="list-style-type: none"> Many times there is more than one vehicle in queue. Most drivers feel restricted, but not objectionably so.
D	<ul style="list-style-type: none"> Often there is more than one vehicle in queue. Drivers feel quite restricted.
E	<ul style="list-style-type: none"> Represents a condition in which the demand is near or equal to the probable maximum number of vehicles that can be accommodated by the movement. There is almost always more than one vehicle in queue. Drivers find the delays approaching intolerable levels.
F	<ul style="list-style-type: none"> Forced flow. Represents an intersection failure condition that is caused by geometric and/or operational constraints external to the intersection.

Table A4 Level-of-Service Criteria for Unsignalized Intersections

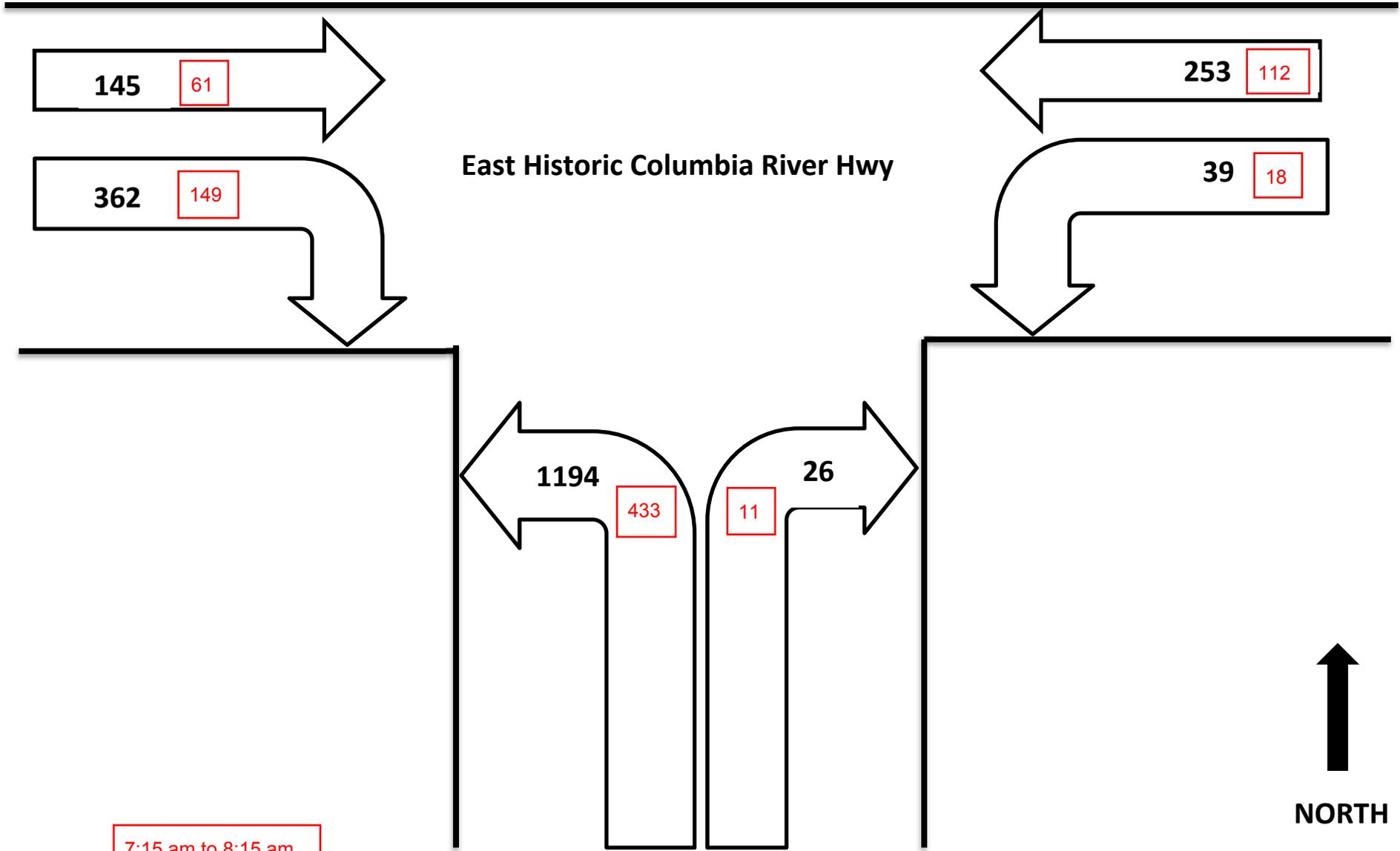
Level of Service	Average Control Delay per Vehicle (Seconds)
A	<10.0
B	>10.0 and ≤ 15.0
C	>15.0 and ≤ 25.0
D	>25.0 and ≤ 35.0
E	>35.0 and ≤ 50.0
F	>50.0

It should be noted that the level-of-service criteria for unsignalized intersections are somewhat different than the criteria used for signalized intersections. The primary reason for this difference is that drivers expect different levels of performance from different kinds of transportation facilities. The expectation is that a signalized intersection is designed to carry higher traffic volumes than an unsignalized intersection. Additionally, there are a number of driver behavior considerations that combine to make delays at signalized intersections less galling than at unsignalized intersections. For example, drivers at signalized intersections are able to relax during the red interval, while drivers on the minor street approaches to TWSC intersections must remain attentive to the task of identifying acceptable gaps and vehicle conflicts. Also, there is often much more variability in the amount of delay experienced by individual drivers at unsignalized intersections than signalized intersections. For these reasons, it is considered that the control delay threshold for any given level of service is less for an unsignalized intersection than for a signalized intersection. While overall intersection level of service is calculated for AWSC intersections, level of service is only calculated for the minor approaches and the major street left turn movements at TWSC intersections. No delay is assumed to the major street through movements. For TWSC intersections, the overall intersection level of service remains undefined: level of service is only calculated for each minor street lane.

In the performance evaluation of TWSC intersections, it is important to consider other measures of effectiveness (MOEs) in addition to delay, such as v/c ratios for individual movements, average queue lengths, and 95th-percentile queue lengths. By focusing on a single MOE for the worst movement only, such as delay for the minor-street left turn, users may make inappropriate traffic control decisions. The potential for making such inappropriate decisions is likely to be particularly pronounced when the HCM level-of-service thresholds are adopted as legal standards, as is the case in many public agencies.

Appendix B
Traffic Counts

BUXTON AND COLUMBIA RIVER HWY



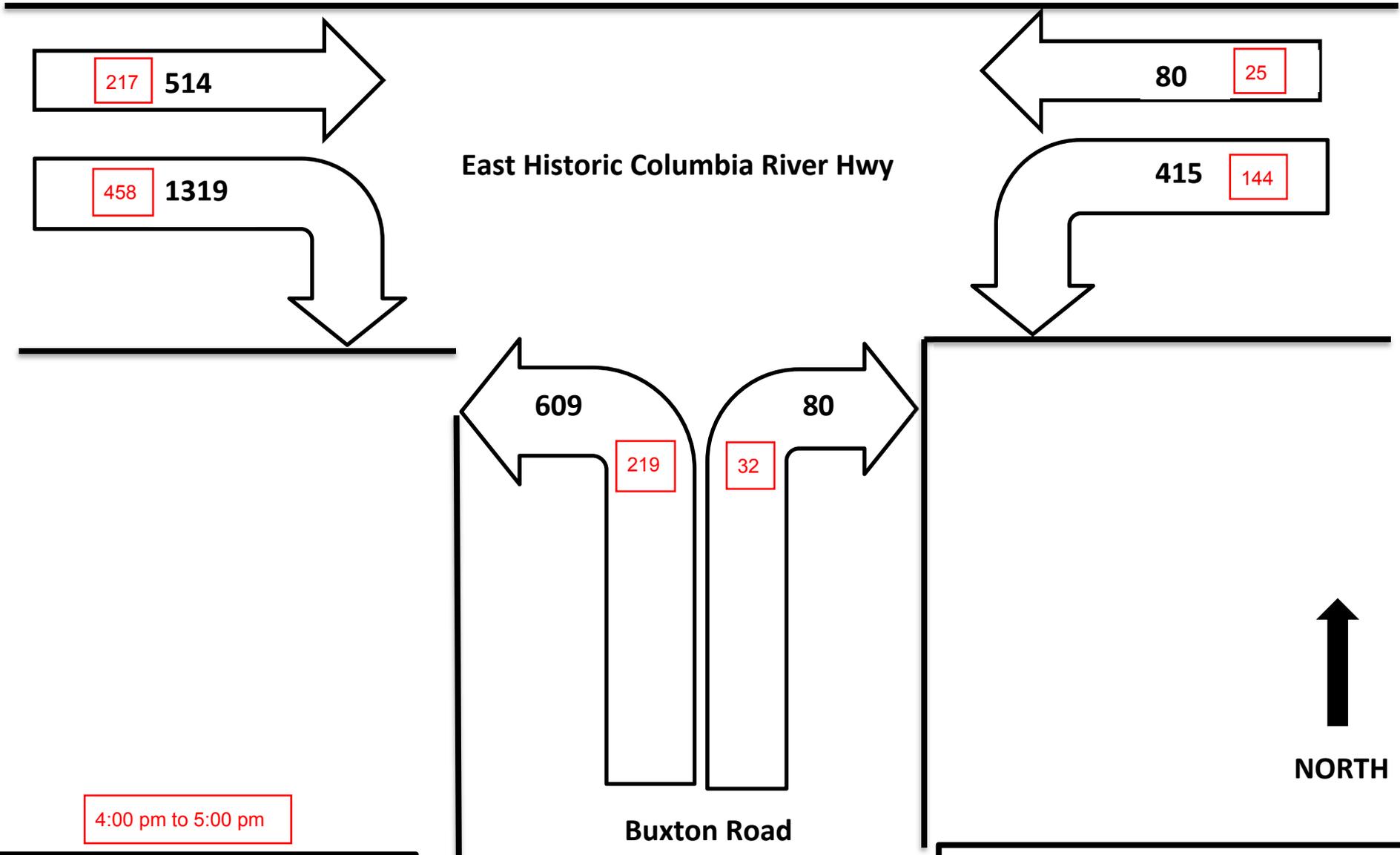
7:15 am to 8:15 am

DATE: 10/27/17
TIME: 6:00 AM TO 9:00 AM

NORTH ↑

PEDESTRIANS:
12

BUXTON AND COLUMBIA
RIVER HWY



Appendix C
Existing Traffic Operations
Worksheets

Multnomah County ICE Evaluations
1: Buxton Rd & HCRH

Existing Year 2017 Conditions
Weekday AM Peak Hour

Intersection						
Int Delay, s/veh	12.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	61	149	18	112	433	11
Future Vol, veh/h	61	149	18	112	433	11
Conflicting Peds, #/hr	0	2	2	0	2	2
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	64	157	19	118	456	12

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	223	0	303
Stage 1	-	-	-	-	145
Stage 2	-	-	-	-	158
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1346	-	689
Stage 1	-	-	-	-	882
Stage 2	-	-	-	-	871
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1343	-	676
Mov Cap-2 Maneuver	-	-	-	-	676
Stage 1	-	-	-	-	880
Stage 2	-	-	-	-	856

Approach	EB	WB	NB
HCM Control Delay, s	0	1.1	21.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	680	-	-	1343	-
HCM Lane V/C Ratio	0.687	-	-	0.014	-
HCM Control Delay (s)	21.1	-	-	7.7	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	5.5	-	-	0	-

Multnomah County ICE Evaluations
1: Buxton Rd & HCRH

Existing Year 2017 Conditions
Weekday PM Peak Hour

Intersection						
Int Delay, s/veh	29.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	217	458	144	25	219	32
Future Vol, veh/h	217	458	144	25	219	32
Conflicting Peds, #/hr	0	13	13	0	13	13
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	247	520	164	28	249	36

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	780	0	889 533
Stage 1	-	-	-	-	520 -
Stage 2	-	-	-	-	369 -
Critical Hdwy	-	-	4.12	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	-	-	2.218	-	3.518 3.318
Pot Cap-1 Maneuver	-	-	837	-	314 547
Stage 1	-	-	-	-	597 -
Stage 2	-	-	-	-	699 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	827	-	~ 245 534
Mov Cap-2 Maneuver	-	-	-	-	~ 245 -
Stage 1	-	-	-	-	590 -
Stage 2	-	-	-	-	552 -

Approach	EB	WB	NB
HCM Control Delay, s	0	8.9	121.6
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	263	-	-	827	-
HCM Lane V/C Ratio	1.085	-	-	0.198	-
HCM Control Delay (s)	121.6	-	-	10.4	0
HCM Lane LOS	F	-	-	B	A
HCM 95th %tile Q(veh)	11.8	-	-	0.7	-

Notes
 -: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Appendix D
Traffic Signal Warrants

MEMORANDUM

Date: June 14, 2016

To: Riad Alharithi, PE, Multnomah County Transportation Division

From: Jim Gelhar, PE, City of Gresham Transportation Division

RE: Traffic Signal Warrants for Historical Columbia River Hwy & Buxton Rd

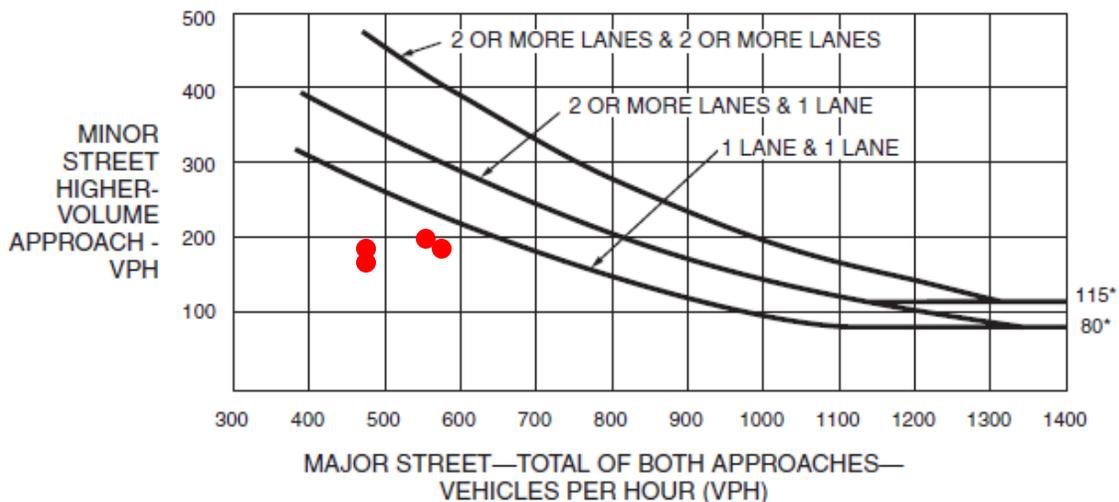
Based on the ADT traffic counts provided by Joreen Whitson, a traffic signal is **not warranted** for the intersection of Historic Columbia River Highway and Buxton Road. The list below includes details of the each of the Traffic Signal Warrants included in the 2009 MUTCD.

Warrant 1, Eight-hour Vehicular Volume NOT MET

The minimum traffic volume for the combined volumes on the main street (HCRH) for the 8th highest hour of the day must exceed 500. The count is 231 for 9:00 a.m. to 10:00 a.m., which is the 8th highest hour for HCRH.

Warrant 2, Four-Hour Vehicular Volume NOT MET

Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

Warrant 3, Peak Hour Not Applicable

The Peak Hour warrant should only be applied in unusual cases, such as office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time.

Warrant 4, Pedestrian Volume Not Analyzed

Pedestrian volumes were not supplied for analysis. A minimum of 133 pedestrians are required during a peak hour, which is unlikely at the study intersection.

Warrant 5, School Crossing Not Applicable

The intersection is not a school crossing.

Warrant 6, Coordinated Signal System Not Applicable

The Coordinated Signal System signal warrant should not be applied where the resultant spacing of traffic control signals would be less than 1,000 feet.

Warrant 7, Crash Experience NOT MET

There are only 5 crashes total in the last three years. The warrant requires 5 crashes within 12 months that are susceptible to correction by a traffic signal.

Warrant 8, Roadway Network NOT MET

The intersection does not have a minimum of 1,000 entering vehicles during the peak hour. There is a second criterion for this warrant that required a minimum of 1,000 entering volumes for a non-normal business day (Saturday or Sunday).

Warrant 9, Intersection Near a Grade Crossing Not Applicable



KITTELSON & ASSOCIATES, INC.
 851 SW 6th Avenue, Suite 600
 Portland, Oregon 97204
 (503) 228-5230

Project #: 23136
Project Name: HCRH Buxton Striping Revisions
Analyst: NAP
Date: 8/31/2018
File: H:\23\23136 - HCRH_Buxton Striping Revisions\excel\[23136 Buxton Signal Warrant Analysis mbm.xls]Warrant Summary(100%)
Intersection: Historic Columbia River Hwy/Buxton Rd
Scenario: Existing Year 2017 Conditions

Analysis Traffic Volumes

Hour	Major Street		Minor Street			
	Begin	End	EB	WB	NB	SB
4:00 PM	5:00 PM		675	169	251	0
2nd Highest Hour			639	160	238	0
3rd Highest Hour			630	158	234	0
4th Highest Hour			603	151	224	0
5th Highest Hour			594	149	221	0
6th Highest Hour			594	149	221	0
7th Highest Hour			567	142	211	0
8th Highest Hour			558	140	207	0
9th Highest Hour			540	135	201	0
10th Highest Hour			504	126	187	0
11th Highest Hour			486	122	181	0
12th Highest Hour			477	119	177	0
13th Highest Hour			459	115	171	0
14th Highest Hour			396	99	147	0
15th Highest Hour			315	79	117	0
16th Highest Hour			297	74	110	0
17th Highest Hour			207	52	77	0
18th Highest Hour			171	43	64	0
19th Highest Hour			90	23	33	0
20th Highest Hour			63	16	23	0
21st Highest Hour			54	14	20	0
22nd Highest Hour			36	9	13	0
23rd Highest Hour			18	5	7	0
24th Highest Hour			18	5	7	0

Warrant Summary

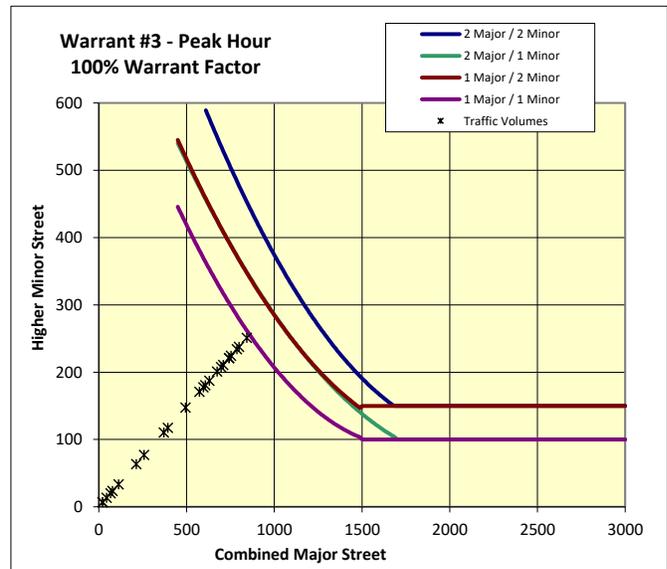
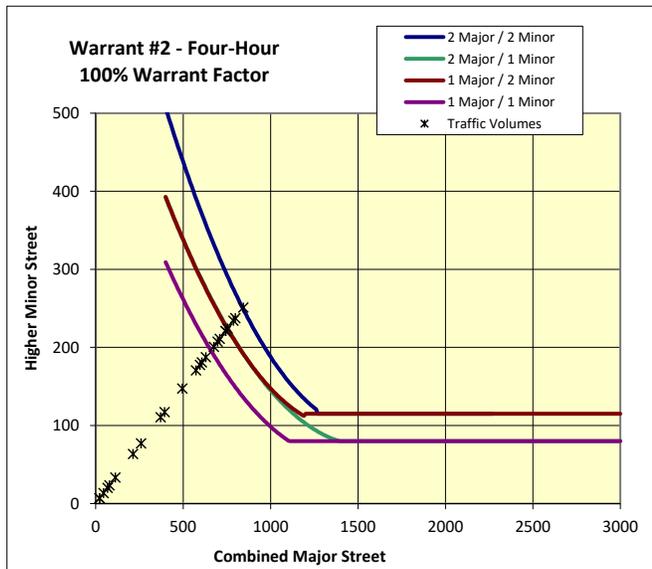
Warrant	Name	Analyzed?	Met?
#1	Eight-Hour Vehicular Volume	Yes	Yes
#2	Four-Hour Vehicular volume	Yes	Yes
#3	Peak Hour	Yes	Yes
#4	Pedestrian Volume	No	-
#5	School Crossing	No	-
#6	Coordinated Signal System	No	-
#7	Crash Experience	No	-
#8	Roadway Network	No	-
#9	Intersection Near a Grade Crossing	No	-

Input Parameters

Volume Adjustment Factor =	1.0
North-South Approach =	Minor
East-West Approach =	Major
Major Street Thru Lanes =	1
Minor Street Thru Lanes =	1
Speed > 40 mph?	No
Population < 10,000?	No
Warrant Factor	100%
Peak Hour or Daily Count?	Peak Hour
Major Street: 4th-Highest Hour / Peak Hour	89%
Major Street: 8th-Highest Hour / Peak Hour	83%
Minor Street: 4th-Highest Hour / Peak Hour	89%
Minor Street: 8th-Highest Hour / Peak Hour	83%

Warrant #1 - Eight Hour

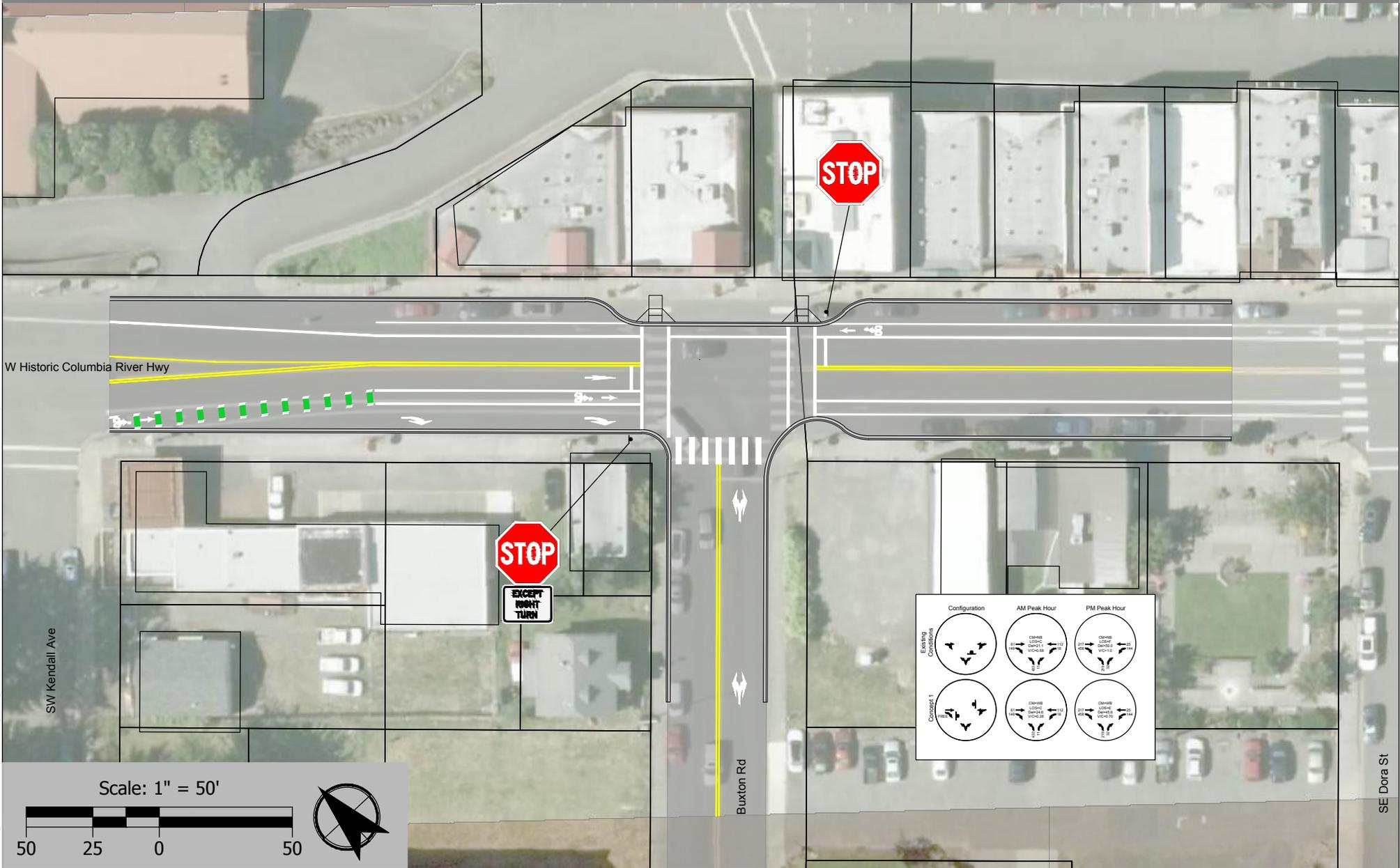
Warrant Factor	Condition	Major Street Requirement	Minor Street Requirement	Hours That Condition Is Met	Condition for Warrant Factor Met?	Signal Warrant Met?
100%	A	500	150	13	Yes	Yes
	B	750	75	4	No	
80%	A	400	120	14	Yes	Yes
	B	600	60	11	Yes	Yes
70%	A	350	105	16	Yes	Yes
	B	525	53	13	Yes	Yes
56%	A	280	84	16	Yes	Yes
	B	420	42	14	Yes	Yes



Appendix E
Conceptual Sketches

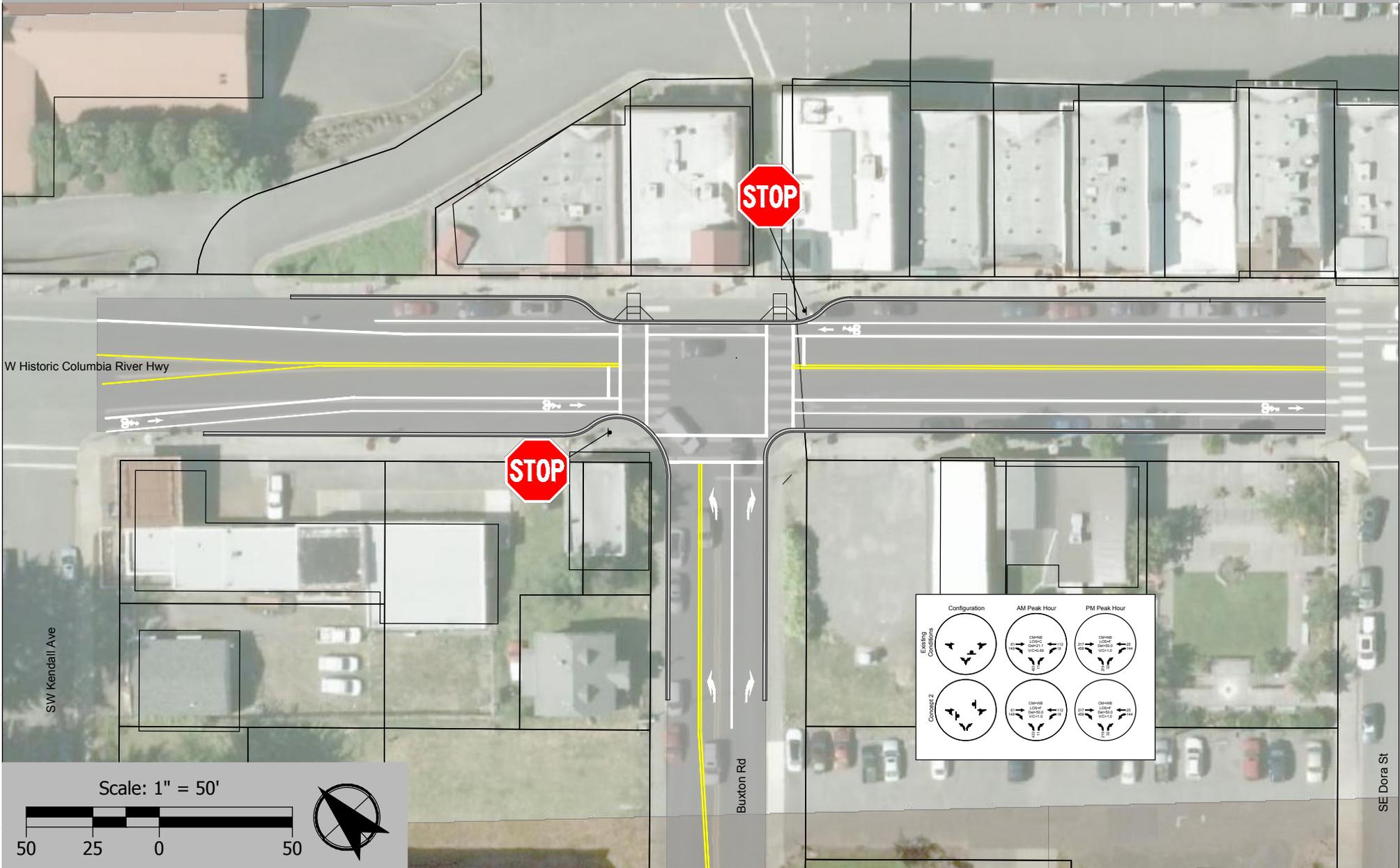
Buxton Intersection Concept 1

Preliminary Design Subject to Change
October 2018

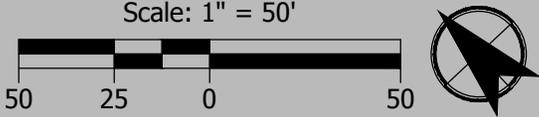


Buxton Intersection Concept 2

Preliminary Design Subject to Change
October 2018

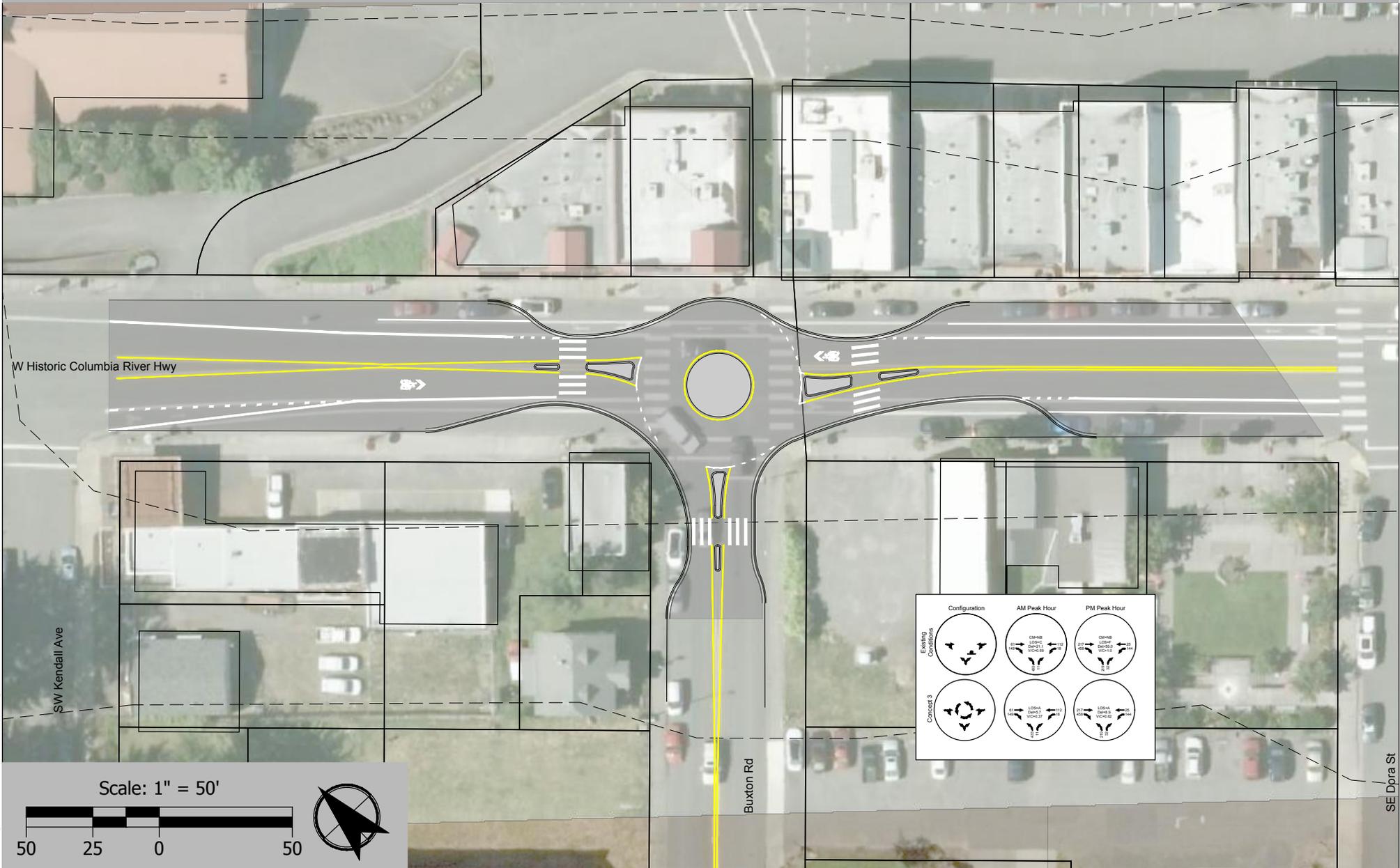


Scale: 1" = 50'

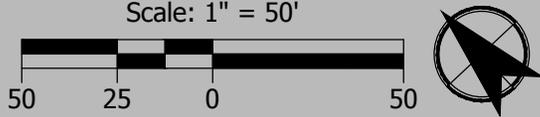


Buxton Intersection Concept 3

Preliminary Design Subject to Change
October 2018

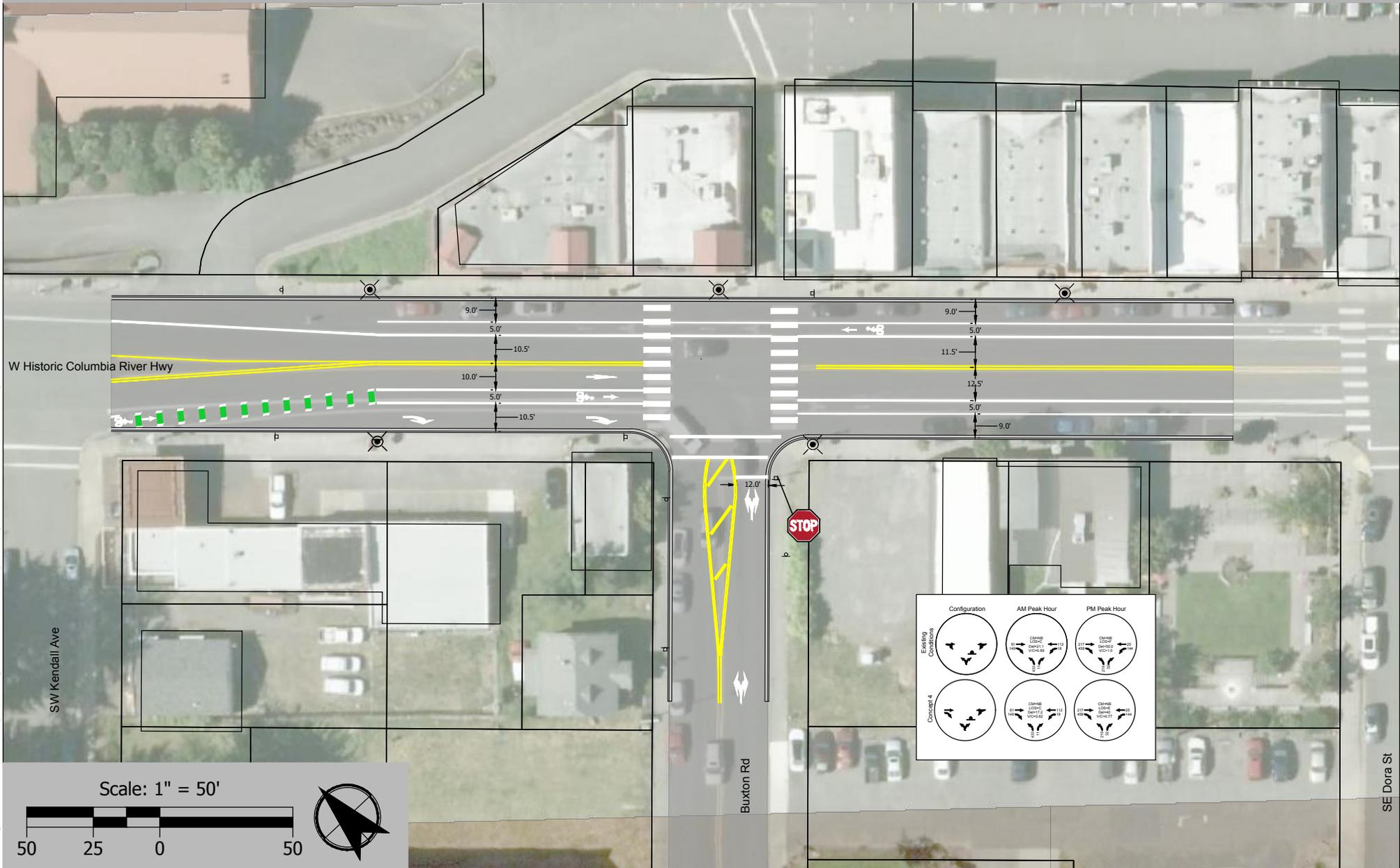


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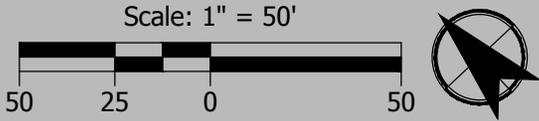


Buxton Intersection Concept 4

Preliminary Design Subject to Change
October 2018



Scale: 1" = 50'



Appendix F
*Concept Alternative
Traffic Operations
Worksheets for
HCRH/Buxton Road
Intersection*

MOVEMENT SUMMARY

 Site: 101 [HCRH-Buxton_AM]

Alternative 1
Stop (Two-Way)

Movement Performance - Vehicles												
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph	
South: Buxton Rd												
3	L2	456	2.0	0.257	0.0	LOS A	0.0	0.0	0.00	0.00	24.1	
18	R2	12	2.0	0.007	0.0	LOS A	0.0	0.0	0.00	0.00	24.1	
Approach		467	2.0	0.257	0.0	NA	0.0	0.0	0.00	0.00	24.1	
East: HCRH												
1	L2	19	2.0	0.257	24.6	LOS C	1.0	26.5	0.57	0.58	18.7	
6	T1	118	2.0	0.257	12.4	LOS B	1.0	26.5	0.57	0.58	17.2	
Approach		137	2.0	0.257	14.1	LOS B	1.0	26.5	0.57	0.58	17.4	
West: HCRH												
2	T1	64	2.0	0.125	13.0	LOS B	0.4	10.9	0.52	0.50	17.4	
12	R2	157	2.0	0.099	0.0	LOS A	0.0	0.0	0.00	0.00	19.8	
Approach		221	2.0	0.125	3.8	LOS A	0.4	10.9	0.15	0.15	19.0	
All Vehicles		825	2.0	0.257	3.4	NA	1.0	26.5	0.14	0.13	21.2	

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Minor Road Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

 Site: 101 [HCRH-Buxton_PM]

Alternative 1
Stop (Two-Way)

Movement Performance - Vehicles												
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph	
South: Buxton Rd												
3	L2	249	2.0	0.140	0.0	LOS A	0.0	0.0	0.00	0.00	24.1	
18	R2	36	2.0	0.023	0.0	LOS A	0.0	0.0	0.00	0.00	24.1	
Approach		285	2.0	0.140	0.0	NA	0.0	0.0	0.00	0.00	24.1	
East: HCRH												
1	L2	164	2.0	0.693	45.6	LOS E	4.8	122.8	0.85	1.29	15.1	
6	T1	28	2.0	0.693	27.3	LOS D	4.8	122.8	0.85	1.29	14.1	
Approach		192	2.0	0.693	42.9	LOS E	4.8	122.8	0.85	1.29	14.9	
West: HCRH												
2	T1	247	2.0	0.365	13.4	LOS B	1.8	46.6	0.51	0.49	17.3	
12	R2	520	2.0	0.330	0.0	LOS A	0.0	0.0	0.00	0.00	19.8	
Approach		767	2.0	0.365	4.3	LOS A	1.8	46.6	0.16	0.16	18.9	
All Vehicles		1244	2.0	0.693	9.3	NA	4.8	122.8	0.23	0.30	19.1	

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Minor Road Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

TWO-WAY STOP CONTROL SUMMARY

Analyst: MBM
 Agency/Co.: Kittelson & Associates, Inc.
 Date Performed: 4/23/2018
 Analysis Time Period: Weekday AM Peak Hour
 Intersection: 1
 Jurisdiction: Multnomah County
 Units: U. S. Customary
 Analysis Year: Existing Year 2017 - Alt 2
 Project ID: 22497
 East/West Street: HCRH
 North/South Street: Buxton Rd
 Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Northbound			Southbound		
		1 L	2 T	3 R	4 L	5 T	6 R

Volume	433		11			
Peak-Hour Factor, PHF	0.95		0.95			
Hourly Flow Rate, HFR	455		11			
Percent Heavy Vehicles	2	--	--		--	--
Median Type/Storage	Undivided			/		
RT Channelized?			No			
Lanes	1		1			
Configuration	L		R			
Upstream Signal?		No			No	

Minor Street:	Approach Movement	Westbound			Eastbound		
		7 L	8 T	9 R	10 L	11 T	12 R

Volume	18	112			61	149
Peak Hour Factor, PHF	0.95	0.95			0.95	0.95
Hourly Flow Rate, HFR	18	117			64	156
Percent Heavy Vehicles	2	2			2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/		No	/
Lanes	0	1			1	0
Configuration		LT				TR

Delay, Queue Length, and Level of Service

Approach Movement	NB	SB	Westbound			Eastbound		
			7 LT	8	9	10	11	12 TR

v (vph)	455		135				220
C(m) (vph)	1621		177				464
v/c	0.28		0.76				0.47
95% queue length	1.16		4.96				2.50
Control Delay	8.1		71.1				19.6
LOS	A		F				C
Approach Delay				71.1			19.6
Approach LOS				F			C

HCS+: Unsignalized Intersections Release 5.6

Phone: _____ Fax: _____
 E-Mail: _____

-----TWO-WAY STOP CONTROL(TWSC) ANALYSIS-----

Analyst: MBM
 Agency/Co.: Kittelson & Associates, Inc.
 Date Performed: 4/23/2018
 Analysis Time Period: Weekday AM Peak Hour
 Intersection: 1
 Jurisdiction: Multnomah County
 Units: U. S. Customary
 Analysis Year: Existing Year 2017 - Alt 2
 Project ID: 22497
 East/West Street: HCRH
 North/South Street: Buxton Rd
 Intersection Orientation: NS Study period (hrs): 0.25

-----Vehicle Volumes and Adjustments-----

Major Street Movements	1 L	2 T	3 R	4 L	5 T	6 R
Volume	433		11			
Peak-Hour Factor, PHF	0.95		0.95			
Peak-15 Minute Volume	114		3			
Hourly Flow Rate, HFR	455		11			
Percent Heavy Vehicles	2	--	--		--	--
Median Type/Storage	Undivided			/		
RT Channelized?			No			
Lanes	1		1			
Configuration	L		R			
Upstream Signal?		No			No	

Minor Street Movements	7 L	8 T	9 R	10 L	11 T	12 R
Volume	18	112			61	149
Peak Hour Factor, PHF	0.95	0.95			0.95	0.95
Peak-15 Minute Volume	5	29			16	39
Hourly Flow Rate, HFR	18	117			64	156
Percent Heavy Vehicles	2	2			2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage				/		No /
RT Channelized?						
Lanes	0	1			1	0
Configuration	LT				TR	

-----Pedestrian Volumes and Adjustments-----

Movements	13	14	15	16
Flow (ped/hr)	1	0	1	1

Lane Width (ft)	12.0	12.0	12.0	12.0
Walking Speed (ft/sec)	4.0	4.0	4.0	4.0
Percent Blockage	0	0	0	0

Upstream Signal Data

	Prog. Flow vph	Sat Flow vph	Arrival Type	Green Time sec	Cycle Length sec	Prog. Speed mph	Distance to Signal feet
S2 Left-Turn Through							
S5 Left-Turn Through							

Worksheet 3-Data for Computing Effect of Delay to Major Street Vehicles

	Movement 2	Movement 5
Shared ln volume, major th vehicles:		
Shared ln volume, major rt vehicles:		
Sat flow rate, major th vehicles:		
Sat flow rate, major rt vehicles:		
Number of major street through lanes:		

Worksheet 4-Critical Gap and Follow-up Time Calculation

Critical Gap Calculation

Movement	1 L	4 L	7 L	8 T	9 R	10 L	11 T	12 R
t(c,base)	4.1		7.1	6.5			6.5	6.2
t(c,hv)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
P(hv)	2		2	2			2	2
t(c,g)			0.20	0.20	0.10	0.20	0.20	0.10
Percent Grade			0.00	0.00	0.00	0.00	0.00	0.00
t(3,lt)	0.00		0.00	0.00			0.00	0.00
t(c,T):	1-stage 0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2-stage 0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
t(c)	1-stage 4.1		7.1	6.5			6.5	6.2
	2-stage							

Follow-Up Time Calculations

Movement	1 L	4 L	7 L	8 T	9 R	10 L	11 T	12 R
t(f,base)	2.20		3.50	4.00			4.00	3.30
t(f,HV)	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
P(HV)	2		2	2			2	2
t(f)	2.2		3.5	4.0			4.0	3.3

Worksheet 5-Effect of Upstream Signals

Computation 1-Queue Clearance Time at Upstream Signal

	Movement 2		Movement 5	
	V(t)	V(l,prot)	V(t)	V(l,prot)

V prog

Total Saturation Flow Rate, s (vph)
 Arrival Type
 Effective Green, g (sec)
 Cycle Length, C (sec)
 Rp (from Exhibit 16-11)
 Proportion vehicles arriving on green P
 g(q1)
 g(q2)
 g(q)

Computation 2-Proportion of TWSC Intersection Time blocked
 Movement 2 Movement 5
 V(t) V(l,prot) V(t) V(l,prot)

alpha
 beta
 Travel time, t(a) (sec)
 Smoothing Factor, F
 Proportion of conflicting flow, f
 Max platooned flow, V(c,max)
 Min platooned flow, V(c,min)
 Duration of blocked period, t(p)
 Proportion time blocked, p 0.000 0.000

Computation 3-Platoon Event Periods Result

p(2) 0.000
 p(5) 0.000
 p(dom)
 p(subo)
 Constrained or unconstrained?

Proportion unblocked for minor movements, p(x)

	(1)	(2)	(3)
	Single-stage	Two-Stage	Process
	Process	Stage I	Stage II

p(1)
 p(4)
 p(7)
 p(8)
 p(9)
 p(10)
 p(11)
 p(12)

Computation 4 and 5
 Single-Stage Process

Movement	1	4	7	8	9	10	11	12
	L	L	L	T	R	L	T	R

V c,x	1	1022	912	923	2
s					
Px					
V c,u,x					

C r,x
 C plat,x

Two-Stage Process

7	8	10	11
---	---	----	----

Worksheet 9-Computation of Effect of Flared Minor Street Approaches

Movement	7 L	8 T	9 R	10 L	11 T	12 R
C sep	108	197			194	1080
Volume	18	117			64	156
Delay						
Q sep						
Q sep +1 round (Qsep +1)						
n max						
C sh	177					464
SUM C sep						
n						
C act						

Worksheet 10-Delay, Queue Length, and Level of Service

Movement	1	4	7	8	9	10	11	12
Lane Config	L		LT					TR
v (vph)	455		135					220
C(m) (vph)	1621		177					464
v/c	0.28		0.76					0.47
95% queue length	1.16		4.96					2.50
Control Delay	8.1		71.1					19.6
LOS	A		F					C
Approach Delay				71.1			19.6	
Approach LOS				F			C	

Worksheet 11-Shared Major LT Impedance and Delay

	Movement 2	Movement 5
p(oj)	0.72	1.00
v(i1), Volume for stream 2 or 5		
v(i2), Volume for stream 3 or 6		
s(i1), Saturation flow rate for stream 2 or 5		
s(i2), Saturation flow rate for stream 3 or 6		
P*(oj)		
d(M,LT), Delay for stream 1 or 4	8.1	
N, Number of major street through lanes		
d(rank,1) Delay for stream 2 or 5		

TWO-WAY STOP CONTROL SUMMARY

Analyst: MBM
 Agency/Co.: Kittelson & Associates, Inc.
 Date Performed: 4/23/2018
 Analysis Time Period: Weekday PM Peak Hour
 Intersection: 1
 Jurisdiction: Multnomah County
 Units: U. S. Customary
 Analysis Year: Existing Year 2017 - Alt 2
 Project ID: 22497
 East/West Street: HCRH
 North/South Street: Buxton Rd
 Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Northbound			Southbound		
		1 L	2 T	3 R	4 L	5 T	6 R

Volume	219	32				
Peak-Hour Factor, PHF	0.88	0.88				
Hourly Flow Rate, HFR	248	36				
Percent Heavy Vehicles	2	--	--		--	--
Median Type/Storage	Undivided			/		
RT Channelized?		No				
Lanes	1	1				
Configuration	L	R				
Upstream Signal?		No			No	

Minor Street:	Approach Movement	Westbound			Eastbound		
		7 L	8 T	9 R	10 L	11 T	12 R

Volume	144	25			217	458
Peak Hour Factor, PHF	0.88	0.88			0.88	0.88
Hourly Flow Rate, HFR	163	28			246	520
Percent Heavy Vehicles	2	2			2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/		No	/
Lanes	0	1			1	0
Configuration		LT				TR

Delay, Queue Length, and Level of Service

Approach Movement	NB	SB	Westbound			Eastbound		
			7 LT	8	9	10	11	12 TR

v (vph)	248	191				766
C(m) (vph)	1621	69				681
v/c	0.15	2.77				1.12
95% queue length	0.54	19.02				23.07
Control Delay	7.6	927.5				97.2
LOS	A	F				F
Approach Delay			927.5			97.2
Approach LOS			F			F

HCS+: Unsignalized Intersections Release 5.6

Phone:
E-Mail:

Fax:

-----TWO-WAY STOP CONTROL(TWSC) ANALYSIS-----

Analyst: MBM
 Agency/Co.: Kittelson & Associates, Inc.
 Date Performed: 4/23/2018
 Analysis Time Period: Weekday PM Peak Hour
 Intersection: 1
 Jurisdiction: Multnomah County
 Units: U. S. Customary
 Analysis Year: Existing Year 2017 - Alt 2
 Project ID: 22497
 East/West Street: HCRH
 North/South Street: Buxton Rd
 Intersection Orientation: NS Study period (hrs): 0.25

-----Vehicle Volumes and Adjustments-----

Major Street Movements	1	2	3	4	5	6
	L	T	R	L	T	R

Volume	219		32			
Peak-Hour Factor, PHF	0.88		0.88			
Peak-15 Minute Volume	62		9			
Hourly Flow Rate, HFR	248		36			
Percent Heavy Vehicles	2	--	--		--	--
Median Type/Storage	Undivided			/		
RT Channelized?			No			
Lanes	1		1			
Configuration	L		R			
Upstream Signal?		No			No	

Minor Street Movements	7	8	9	10	11	12
	L	T	R	L	T	R

Volume	144	25			217	458
Peak Hour Factor, PHF	0.88	0.88			0.88	0.88
Peak-15 Minute Volume	41	7			62	130
Hourly Flow Rate, HFR	163	28			246	520
Percent Heavy Vehicles	2	2			2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage				/		No /
RT Channelized?						
Lanes	0	1			1	0
Configuration	LT				TR	

-----Pedestrian Volumes and Adjustments-----

Movements	13	14	15	16
Flow (ped/hr)	1	0	1	1

Lane Width (ft)	12.0	12.0	12.0	12.0
Walking Speed (ft/sec)	4.0	4.0	4.0	4.0
Percent Blockage	0	0	0	0

Upstream Signal Data

	Prog. Flow vph	Sat Flow vph	Arrival Type	Green Time sec	Cycle Length sec	Prog. Speed mph	Distance to Signal feet
S2 Left-Turn Through							
S5 Left-Turn Through							

Worksheet 3-Data for Computing Effect of Delay to Major Street Vehicles

	Movement 2	Movement 5
Shared ln volume, major th vehicles:		
Shared ln volume, major rt vehicles:		
Sat flow rate, major th vehicles:		
Sat flow rate, major rt vehicles:		
Number of major street through lanes:		

Worksheet 4-Critical Gap and Follow-up Time Calculation

Critical Gap Calculation

Movement	1 L	4 L	7 L	8 T	9 R	10 L	11 T	12 R
t(c,base)	4.1		7.1	6.5			6.5	6.2
t(c,hv)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
P(hv)	2		2	2			2	2
t(c,g)			0.20	0.20	0.10	0.20	0.20	0.10
Percent Grade			0.00	0.00	0.00	0.00	0.00	0.00
t(3,lt)	0.00		0.00	0.00			0.00	0.00
t(c,T):	1-stage 0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2-stage 0.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
t(c)	1-stage 4.1		7.1	6.5			6.5	6.2
	2-stage							

Follow-Up Time Calculations

Movement	1 L	4 L	7 L	8 T	9 R	10 L	11 T	12 R
t(f,base)	2.20		3.50	4.00			4.00	3.30
t(f,HV)	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
P(HV)	2		2	2			2	2
t(f)	2.2		3.5	4.0			4.0	3.3

Worksheet 5-Effect of Upstream Signals

Computation 1-Queue Clearance Time at Upstream Signal

	Movement 2		Movement 5	
	V(t)	V(l,prot)	V(t)	V(l,prot)
V prog				

Total Saturation Flow Rate, s (vph)
 Arrival Type
 Effective Green, g (sec)
 Cycle Length, C (sec)
 Rp (from Exhibit 16-11)
 Proportion vehicles arriving on green P
 g(q1)
 g(q2)
 g(q)

Computation 2-Proportion of TWSC Intersection Time blocked
 Movement 2 Movement 5
 V(t) V(l,prot) V(t) V(l,prot)

alpha
 beta
 Travel time, t(a) (sec)
 Smoothing Factor, F
 Proportion of conflicting flow, f
 Max platooned flow, V(c,max)
 Min platooned flow, V(c,min)
 Duration of blocked period, t(p)
 Proportion time blocked, p 0.000 0.000

Computation 3-Platoon Event Periods Result

p(2) 0.000
 p(5) 0.000
 p(dom)
 p(subo)
 Constrained or unconstrained?

Proportion unblocked for minor movements, p(x)

	(1)	(2)	(3)
	Single-stage	Two-Stage Process	
	Process	Stage I	Stage II

p(1)
 p(4)
 p(7)
 p(8)
 p(9)
 p(10)
 p(11)
 p(12)

Computation 4 and 5
 Single-Stage Process

Movement	1	4	7	8	9	10	11	12
	L	L	L	T	R	L	T	R

V c,x	1	881	498	534	2
s					
Px					
V c,u,x					

C r,x
 C plat,x

Two-Stage Process

7	8	10	11
---	---	----	----

Part 2 - Second Stage
 Conflicting Flows
 Potential Capacity
 Pedestrian Impedance Factor
 Cap. Adj. factor due to Impeding mvmnt
 Movement Capacity

Part 3 - Single Stage

Conflicting Flows	498	534
Potential Capacity	474	452
Pedestrian Impedance Factor	1.00	1.00
Cap. Adj. factor due to Impeding mvmnt	0.85	0.85
Movement Capacity	401	382

Result for 2 stage process:

a
 Y
 C t

Probability of Queue free St.	401	382
	0.93	0.36

Step 4: LT from Minor St. 7 10

Part 1 - First Stage
 Conflicting Flows
 Potential Capacity
 Pedestrian Impedance Factor
 Cap. Adj. factor due to Impeding mvmnt
 Movement Capacity

Part 2 - Second Stage
 Conflicting Flows
 Potential Capacity
 Pedestrian Impedance Factor
 Cap. Adj. factor due to Impeding mvmnt
 Movement Capacity

Part 3 - Single Stage

Conflicting Flows	881	
Potential Capacity	267	
Pedestrian Impedance Factor	1.00	1.00
Maj. L, Min T Impedance factor	0.30	0.79
Maj. L, Min T Adj. Imp Factor.	0.43	0.84
Cap. Adj. factor due to Impeding mvmnt	0.22	0.83
Movement Capacity	60	

Results for Two-stage process:

a
 Y
 C t 60

Worksheet 8-Shared Lane Calculations

Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (vph)	163	28			246	520
Movement Capacity (vph)	60	401			382	1080
Shared Lane Capacity (vph)	69					681

Worksheet 9-Computation of Effect of Flared Minor Street Approaches

Movement	7 L	8 T	9 R	10 L	11 T	12 R
C sep	60	401			382	1080
Volume	163	28			246	520
Delay						
Q sep						
Q sep +1 round (Qsep +1)						
n max						
C sh	69					681
SUM C sep						
n						
C act						

Worksheet 10-Delay, Queue Length, and Level of Service

Movement	1	4	7	8	9	10	11	12
Lane Config	L		LT					TR
v (vph)	248		191					766
C(m) (vph)	1621		69					681
v/c	0.15		2.77					1.12
95% queue length	0.54		19.02					23.07
Control Delay	7.6		927.5					97.2
LOS	A		F					F
Approach Delay				927.5			97.2	
Approach LOS				F			F	

Worksheet 11-Shared Major LT Impedance and Delay

	Movement 2	Movement 5
p(oj)	0.85	1.00
v(i1), Volume for stream 2 or 5		
v(i2), Volume for stream 3 or 6		
s(i1), Saturation flow rate for stream 2 or 5		
s(i2), Saturation flow rate for stream 3 or 6		
P*(oj)		
d(M,LT), Delay for stream 1 or 4	7.6	
N, Number of major street through lanes		
d(rank,1) Delay for stream 2 or 5		

MOVEMENT SUMMARY

 Site: 101 [HCRH-Buxton_AM]

Alternative 3
Roundabout

Movement Performance - Vehicles												
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph	
South: Buxton Rd												
3	L2	456	2.0	0.369	6.3	LOS A	2.3	57.8	0.26	0.12	32.0	
18	R2	12	2.0	0.369	6.3	LOS A	2.3	57.8	0.26	0.12	31.1	
Approach		467	2.0	0.369	6.3	LOS A	2.3	57.8	0.26	0.12	32.0	
East: HCRH												
1	L2	19	2.0	0.163	5.9	LOS A	0.7	17.5	0.54	0.47	34.4	
6	T1	118	2.0	0.163	5.9	LOS A	0.7	17.5	0.54	0.47	34.4	
Approach		137	2.0	0.163	5.9	LOS A	0.7	17.5	0.54	0.47	34.4	
West: HCRH												
2	T1	64	2.0	0.167	4.1	LOS A	0.8	20.7	0.10	0.03	35.7	
12	R2	157	2.0	0.167	4.1	LOS A	0.8	20.7	0.10	0.03	34.6	
Approach		221	2.0	0.167	4.1	LOS A	0.8	20.7	0.10	0.03	34.9	
All Vehicles		825	2.0	0.369	5.7	LOS A	2.3	57.8	0.26	0.15	33.1	

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

 Site: 101 [HCRH-Buxton_PM]

Alternative 3
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Buxton Rd											
3	L2	231	2.0	0.248	5.7	LOS A	1.2	30.9	0.43	0.31	32.5
18	R2	34	2.0	0.248	5.7	LOS A	1.2	30.9	0.43	0.31	31.6
Approach		264	2.0	0.248	5.7	LOS A	1.2	30.9	0.43	0.31	32.4
East: HCRH											
1	L2	152	2.0	0.167	4.9	LOS A	0.8	19.4	0.40	0.27	33.0
6	T1	26	2.0	0.167	4.9	LOS A	0.8	19.4	0.40	0.27	32.9
Approach		178	2.0	0.167	4.9	LOS A	0.8	19.4	0.40	0.27	33.0
West: HCRH											
2	T1	228	2.0	0.615	11.0	LOS B	5.1	129.4	0.58	0.38	32.1
12	R2	482	2.0	0.615	11.0	LOS B	5.1	129.4	0.58	0.38	31.3
Approach		711	2.0	0.615	11.0	LOS B	5.1	129.4	0.58	0.38	31.5
All Vehicles		1153	2.0	0.615	8.9	LOS A	5.1	129.4	0.51	0.35	31.9

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Intersection						
Int Delay, s/veh	9.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗		↖	↘	
Traffic Vol, veh/h	61	149	18	112	433	11
Future Vol, veh/h	61	149	18	112	433	11
Conflicting Peds, #/hr	0	2	2	0	2	2
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	100	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	64	157	19	118	456	12

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	223	0	224 68
Stage 1	-	-	-	-	66 -
Stage 2	-	-	-	-	158 -
Critical Hdwy	-	-	4.12	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	-	-	2.218	-	3.518 3.318
Pot Cap-1 Maneuver	-	-	1346	-	764 995
Stage 1	-	-	-	-	957 -
Stage 2	-	-	-	-	871 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1343	-	749 991
Mov Cap-2 Maneuver	-	-	-	-	749 -
Stage 1	-	-	-	-	941 -
Stage 2	-	-	-	-	869 -

Approach	EB	WB	NB
HCM Control Delay, s	0	1.1	17.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	754	-	-	1343	-
HCM Lane V/C Ratio	0.62	-	-	0.014	-
HCM Control Delay (s)	17.2	-	-	7.7	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	4.4	-	-	0	-

Intersection						
Int Delay, s/veh	10.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗		↖	↘	
Traffic Vol, veh/h	217	458	144	25	219	32
Future Vol, veh/h	217	458	144	25	219	32
Conflicting Peds, #/hr	0	13	13	0	13	13
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	100	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	247	520	164	28	249	36

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	780	0	629 273
Stage 1	-	-	-	-	260 -
Stage 2	-	-	-	-	369 -
Critical Hdwy	-	-	4.12	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	-	-	2.218	-	3.518 3.318
Pot Cap-1 Maneuver	-	-	837	-	446 766
Stage 1	-	-	-	-	783 -
Stage 2	-	-	-	-	699 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	827	-	348 747
Mov Cap-2 Maneuver	-	-	-	-	348 -
Stage 1	-	-	-	-	618 -
Stage 2	-	-	-	-	691 -

Approach	EB	WB	NB
HCM Control Delay, s	0	8.9	40
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	373	-	-	827	-
HCM Lane V/C Ratio	0.765	-	-	0.198	-
HCM Control Delay (s)	40	-	-	10.4	0
HCM Lane LOS	E	-	-	B	A
HCM 95th %tile Q(veh)	6.2	-	-	0.7	-

Appendix G
*Sensitivity Analysis Traffic
Operations Worksheets*

MOVEMENT SUMMARY

 Site: 101 [HCRH-Buxton_PM - 5%]

Alternative 3
Roundabout

Movement Performance - Vehicles												
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph	
South: Buxton Rd												
3	L2	242	2.0	0.264	6.0	LOS A	1.3	33.3	0.45	0.32	32.4	
18	R2	36	2.0	0.264	6.0	LOS A	1.3	33.3	0.45	0.32	31.5	
Approach		278	2.0	0.264	6.0	LOS A	1.3	33.3	0.45	0.32	32.3	
East: HCRH												
1	L2	159	2.0	0.177	5.0	LOS A	0.8	20.6	0.41	0.29	32.9	
6	T1	27	2.0	0.177	5.0	LOS A	0.8	20.6	0.41	0.29	32.8	
Approach		186	2.0	0.177	5.0	LOS A	0.8	20.6	0.41	0.29	32.9	
West: HCRH												
2	T1	240	2.0	0.651	12.1	LOS B	5.7	144.6	0.62	0.43	31.7	
12	R2	506	2.0	0.651	12.1	LOS B	5.7	144.6	0.62	0.43	30.8	
Approach		746	2.0	0.651	12.1	LOS B	5.7	144.6	0.62	0.43	31.1	
All Vehicles		1211	2.0	0.651	9.6	LOS A	5.7	144.6	0.55	0.38	31.6	

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

 Site: 101 [HCRH-Buxton_PM - 12%]

Alternative 3
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Buxton Rd											
3	L2	258	2.0	0.286	6.3	LOS A	1.4	36.5	0.47	0.35	32.3
18	R2	38	2.0	0.286	6.3	LOS A	1.4	36.5	0.47	0.35	31.3
Approach		296	2.0	0.286	6.3	LOS A	1.4	36.5	0.47	0.35	32.1
East: HCRH											
1	L2	169	2.0	0.192	5.3	LOS A	0.9	22.6	0.43	0.31	32.8
6	T1	29	2.0	0.192	5.3	LOS A	0.9	22.6	0.43	0.31	32.7
Approach		199	2.0	0.192	5.3	LOS A	0.9	22.6	0.43	0.31	32.8
West: HCRH											
2	T1	256	2.0	0.702	13.8	LOS B	7.2	182.2	0.70	0.51	30.9
12	R2	540	2.0	0.702	13.8	LOS B	7.2	182.2	0.70	0.51	30.1
Approach		796	2.0	0.702	13.8	LOS B	7.2	182.2	0.70	0.51	30.4
All Vehicles		1291	2.0	0.702	10.8	LOS B	7.2	182.2	0.61	0.44	31.1

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Sign Control.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

Roundabout Capacity Model: US HCM 6.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: Traditional M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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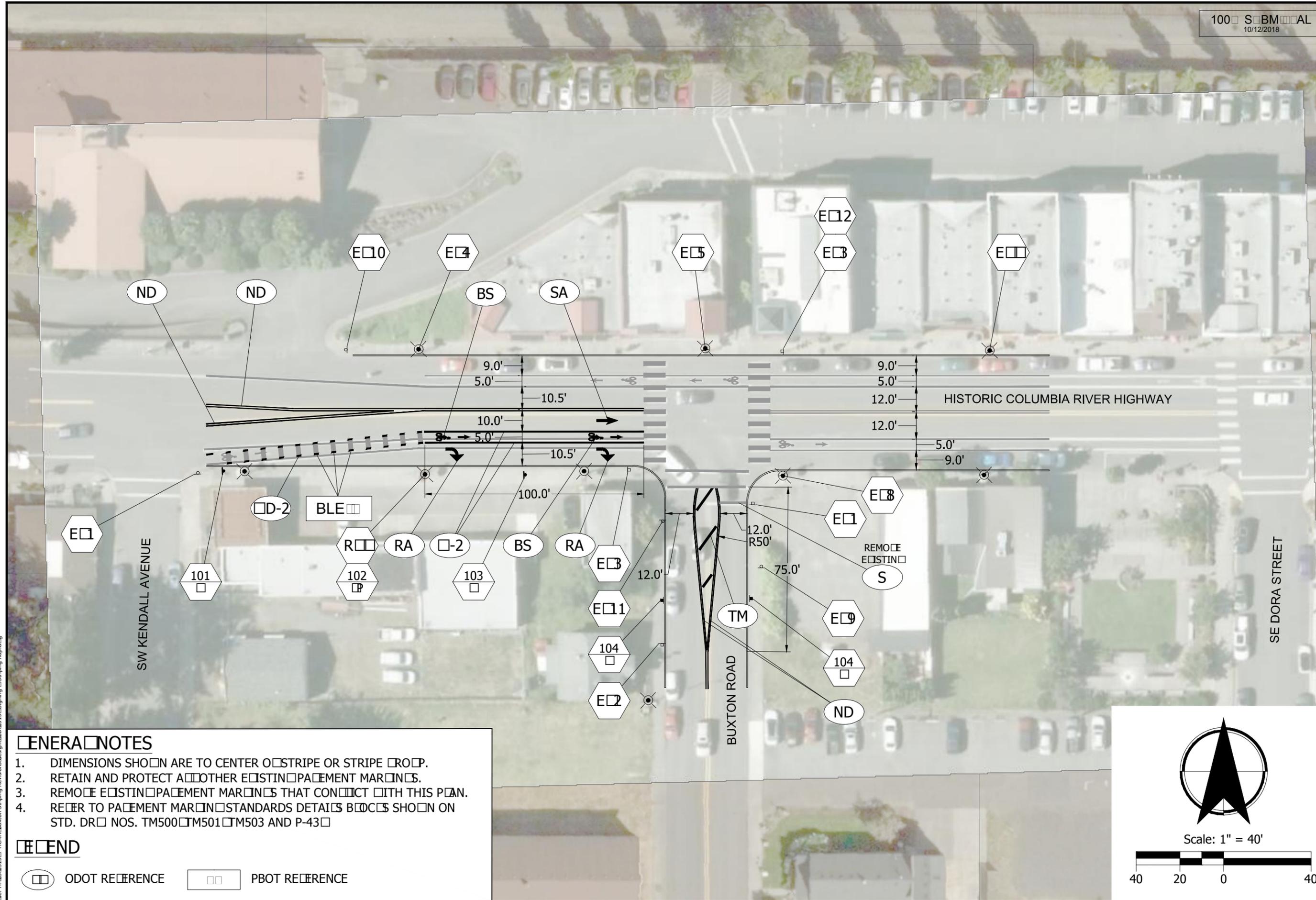
NO.	DATE	REVISION	APP'D

Submission Date: 10/12/2018
 Dra: BSC, Des: NAP, Check: H/S

PROJECT NO. 2313

HCRH Buxton Road Improvements
 STONING STRIPING PLANS

SHEET NO. SS1

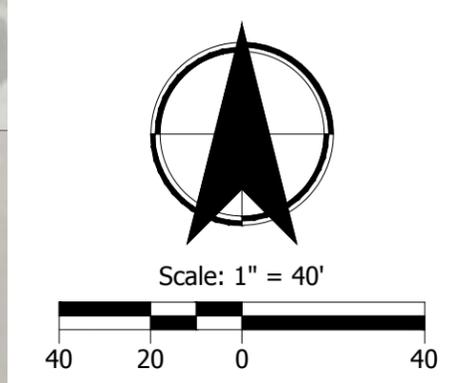


GENERAL NOTES

1. DIMENSIONS SHOWN ARE TO CENTER OF STRIPE OR STRIPE CORNER.
2. RETAIN AND PROTECT ALL OTHER EXISTING PAVEMENT MARKINGS.
3. REMOVE EXISTING PAVEMENT MARKINGS THAT CONFLICT WITH THIS PLAN.
4. REFER TO PAVEMENT MARKING STANDARDS DETAILS BLOCKS SHOWN ON STD. DR. NOS. TM500, TM501, TM503 AND P-43.

LEGEND

- ODOT REFERENCE
- PBOT REFERENCE



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SIGNING NUMBER LEGEND

100 S BM AL
10/12/2018



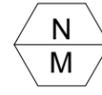
KITTELSON & ASSOCIATES
881 SW 6TH AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.275.8168

EXISTING SIGNS

					
1	2	3	4	5	6
					
7	8	9	10	11	12

DENOTES EXISTING SIGN

SIGNING LEGEND

-  RETAIN AND PROTECT EXISTING SIGN (N) AND SUPPORT
 -  REMOVE EXISTING SIGN (N)
 -  INSTALL NEW SIGN (N) ON NEW (M) SIGN SUPPORT
- N = SIGN NUMBER
M = MATERIAL OPTIONS:
LP= EXISTING LIGHT POLE
W = WOOD

PROPOSED SIGNS

			
101 R4-4 36"x30" 1 Required	102 R7-101-D 12"x18" 1 Required	103 R3-7R 30"x30" 1 Required	104 R7-1 12"x18" 2 Required

APP'D	REVISION	DATE

Submission Date: 10/12/2018
 Dra: BSC, Des: NAP, Ch: HIS
 PROJECT NO. 2313

HCRH Buxton Road Improvements
 STONIN

SHEET NO. SS2

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