



MEETING SUMMARY

US 97 BAKER ROAD INTERCHANGE AREA MANAGEMENT PLAN (IAMP)

TECHNICAL ADVISORY COMMITTEE (TAC) MEETING #2

MAY 6, 2021; 1:00 PM – 3:00 PM

VIRTUAL

ATTENDEES

Technical Advisory Committee Members

Andrea Napoli (Bend MPO)

Damian Syrnyk (City of Bend)

David Hirsch (ODOT)

David Warrick (ODOT)

David Knitowski (ODOT)

Dejan Duditch (ODOT)

Jim Scholtes (ODOT)

Jenn Cline (ODOT)

Peter Russell (Deschutes County)

Peter Schuytema (ODOT)

Rachel Zakem (Cascades East Transit)

Marcos Romero (US Forest Service)

Scott Edelman (DLCD)

Theresa Conley (ODOT)

Tom Kuhn (Deschutes County Health Services)

Chris Cheng (ODOT)

Project Team

Don Morehouse (ODOT), John Bosket (DKS Associates), Kayla Fleskes (DKS Associates), Andrew Johnson (HDR Inc)

Other Attendees

Greg Bryant (Deschutes River Woods)

INTRODUCTIONS/ AGENDA OVERVIEW/ PROJECT STATUS

- John Bosket opened up the meeting and gave a brief overview of the memoranda that would be the topics of conversation before going through a roll call.
- John reviewed the schedule changes that have happened since the last meeting, which include breaking out the Project Advisory Committee into a Technical Advisory Committee (TAC) and Community Advisory Committee (CAC) into two separate groups and adding a second online open house to the project schedule. He noted that meeting invites will be sent out shortly for the concept evaluation workshop, which will follow the first online open house. The online open house is scheduled to be available June 7 through June 18, with a live virtual session on June 9

where project team members will be available for discussions with the public. The concept evaluation workshop will be held the following week.

EXISTING CONDITIONS (TECH MEMO 2A, 2B, 2C, 3)

Land Use

- John reviewed maps showing the project boundaries and gave a brief introduction of land use near the interchange. He noted that some of the areas of high growth include the “thumb”, SE Area and DSL area.
 - Damian Syrnyk noted that City Council approved the SE Area Plan on April 21st and the changes will become effective on May 21st. The plan area will include approximately 2,800 jobs and 1,200 housing units. The DSL area has been renamed Stevens Ranch Property and they are proposing a master planning study. No master planning has begun for the thumb area and there are no indications that would happen in the near term.
 - John noted the 2040 assumptions include a full buildout of the thumb area, beyond the existing UGB boundary.

Environmental

- Andrew Johnson gave a brief overview of the environment study area. The area of potential impact (API) is focused on where infrastructure changes may occur while the area of social impact (ASI) references the broader populations that may be impacted by changes to access in the study area.
 - No significant resources were identified during the environmental review that would likely be impacted by physical infrastructure improvements.
 - One focus will be potential socio-economic impacts of any solutions (positive or negative) given the diversity of incomes, ethnicities and language in the area.
 - Damian asked about the surface mine southwest of the Deschutes River Woods neighborhood.
 - > Andrew noted the mine is not in the API so the concern for that area would not be direct infrastructure impacts but instead maintaining access for heavy vehicles to that area.
 - > Marcos said if the surface mine is on Forest Service land, the mine is not for profit so there would not be an economic impact due to a change in accessibility. Damian said it is a private mine and listed as a Goal 5 resource.
 - Andrew said ungulate migration patterns occur to the east and there is an undercrossing of US 97 near Cottonwood.
 - Andrea noted that the MPO has mapped latest ACS data in this area and it is available to view online. She also noted that environmental considerations are mapped in the MTP. Andrew said he would review that data to cross check Tech Memo #2 and reach out if there were any differences.

Transportation

Classification, Geometry and Access Spacing

- John described functional classifications and speeds in the API.
 - Dave Warrick noted that the designations are important. In particular, the Seismic Tier 1 Route indicates US 97 is the backup for I-5 during a large earthquake event.
- John described traffic control and travel lanes on Baker Road/Knott Road. There are no left turn lanes or traffic signals on Baker Road/Knott Road near the interchange.
- John noted that the loop ramp acceleration is slightly shorter than current standards and improvements will be looked at during alternatives evaluation. John discussed access spacing on Baker Road/Knott Road and US 97. He noted that the at-grade right-on, right-off access points on US 97 are planned to be closed. Once that happens, access spacing on US 97 will meet urban standards. Access spacing on Baker Road/Knott Road will be a challenge, with numerous access points on the west side within ¼-mile of the interchange.

Transit and Rail Operations

- John discussed that transit access includes Route 30 on US 97 with a stop on Cinder Butte Road at the Riverwoods Baptist Church.
 - Rachel Zakem noted that CET has met with the Country Store and the store is open to having a transit stop in the area near their property. CET is beginning the public outreach process to move the stop. Route 30 now has service on Saturday again (began again this month after being shut down for COVID-19) and there are now nearly 6 stops per day.
 - John noted that there is ongoing discussion on how trailheads and transit stops may be co-located.
 - Theresa Conley asked if the CET route stops in both directions or only in the southbound direction. Rachel noted that it varies depending on the time of day (on the weekends it stops every run at the Riverwoods Church and on weekdays in the mornings the bus stops northbound and in the afternoon the bus stops southbound).
 - Theresa asked if the IAMP could identify any mitigation measures for transit in case there are access/congestion issues for transit to stop in both directions on a regular basis. John agreed this could be included.
- John noted the railroad at-grade crossing is located approximately 225 feet west of the southbound ramps. Up to 8 trains per day cross with just under 2 minutes of gate down time per crossing.

Pedestrian and Bicycle Facilities

- There are limited walking and biking facilities. Baker Road/Knott Road is one of the few grade separated crossings of US 97 (Murphy Road is 2 miles to the north). The road is a County bikeway and a common recreational biking route. Nearly all the routes are level of traffic stress 4, which indicates high stress based on lack of separation from high speed (greater than 35 mph) motor vehicle traffic. Future trails include the Lava Butte Multiuse Path, Arnold Irrigation Canal Trail and Rail with Trail to the north. The first two trails are likely shorter term while the Rail with Trail is farther in the future and may only get constructed if the railroad is ever vacated. There is interest in a grade separated crossing of Baker Road/Knott Road to connect

the Lava Butte Multiuse Path and the Arnold Irrigation Canal Trail. John noted that the Lava Butte Multiuse Path is shown on the east side but could be on the west side - the evaluation is still on-going to determine this.

- Peter Russell noted that the trail on east side has major land use challenges due to forest zoning while the west side does not. Marcos noted that Forest Service, ODOT and County are working together to determine the appropriate alignment between Lava Lands, High Desert Museum and Baker Road/Knott Road.

Traffic Operations and Safety

- John noted that due to COVID-19, the existing conditions traffic operations are using 2017 traffic volumes. This will likely not impact design decisions as the design will be based on 2040 traffic volumes. We do not have AM volumes but are aware that traffic volumes will be impacted by the school in the morning. There is significant fluctuation in seasonal traffic in this segment of US 97 and slightly less of a commute peak throughout the day compared to other areas in Bend due to the semi-undeveloped status of the surrounding land.
- Both ramp terminals experience congestion today and are not meeting mobility targets, with significant queueing on the ramp terminals (approximately 1000' feet for the southbound off-ramp). There are some long delays on stop-controlled approaches and queueing occurs on Baker Road/Knott Road for vehicles stopping to make a left turn, particularly at Cinder Butte Road. Queues can periodically spillback due to the close intersection spacing and lack of left turn lanes. Outside of the interchange area (on US 97 mainline and China Hat Road) no significant existing congestion issues were identified.
- Safety risk factors include closely spaced intersections, proximity to the railroad, lack of left turn lanes, lack of facilities for people walking and biking and high speeds for vehicles coming from the east on Knott Road. There were no fatalities in the five years of crash data analyzed (2014-2018) with one pedestrian crash at US 97/Ponderosa Street. There was a mix of rear-end crashes and turning crashes. John noted that there were similar contributing factors at the intersections that had a higher-than-expected rate of crashes except for Knott Road/China Hat Road where there were a lot of angle crashes. A roundabout is planned on Knott Road/China Hat Road in the future.

FUTURE NO-BUILD CONDITIONS (TECH MEMO 4)

- Future (2040) No Build conditions assume: US 97/Murphy Road northbound on-ramp and southbound off-ramp; closure of right-on, right-off direct connections to US 97; China Hat Road overcrossing of US 97 with a realignment of Parrell Road/China Hat and a frontage road between Ponderosa Street and Murphy Road; and a roundabout at China Hat Road/Knott Road. By 2040, nearly 3,900 jobs and 600 homes are assumed in the thumb area, which assumes an expansion of the current urban growth boundary.
- Significant traffic growth is expected for movements related to the land use growth on the east side of the interchange. The same intersections fail to meet mobility targets but experience even more delay in the future. John discussed the key queueing contributors, including the lack of left turn lanes on Baker Road/Knott Road, heavy southbound demand at US 97 SB/Baker Road and high delays on stop-controlled side streets.

- There was no net benefit of leaving right-on, right-off access points on US 97 in the analysis. While leaving these open does benefit the interchange, the same benefit could probably be achieved by constructing a westbound right turn lane at the northbound ramp. Leaving these access points open would ultimately degrade safety and operations on US 97.
- The China Hat Road overcrossing is critical for serving growth in the thumb and pulling traffic off Parrell Road, which is a key biking route for the City. The overcrossing is also beneficial for the interchange.

DISCUSS SOLUTION IDEAS

- Andrew noted that the solution development and evaluation process would be very similar to the North Interchange project. The starting point is the goals and objectives with a qualitative assessment to balance the tradeoffs associated with the goals. Andrew listed the eight goals associated with the project.
 - Jenn Cline noted that ODOT’s [Strategic Action Plan](#) includes several priorities and goals listed including to “improve access to active and public transportation” and “implement a social equity engagement framework”.
- The concept evaluation process includes 1) Develop Options, 2) Workshop and 3) Evaluation and Refinement. Step 1 is starting now while Steps 2 and 3 will happen in June and through the summer. The workshop will include approximately five options with the goal to refine the number of alternatives to three options at the end of the workshop. After the workshop, the top three concepts will be further refined and evaluated. Andrew shared an example evaluation from the North Interchange project.
- Some of the options that will be looked at early on in the concept evaluation include:
 - Raise the railroad – To make grade, the railroad impacts would be pretty significant and expensive. It would likely require building a structure off to the side to avoid shutting down the track. While it is still on the table for the work session, it will likely be a pretty impactful option that will not balance the goals and objectives well.
 - Raise Baker Road over the railroad – This option would require local road changes and the grade difference would be pretty significant requiring relocating driveways for houses on Baker Road. Structures would be required for the southbound ramp and Baker Court.
 - Roundabout flyover (east side) – This option would have the potential to reduce operational friction with the railroad and access points on Baker Road near the existing southbound ramp.
 - > Dave Hirsch asked if the roundabout could also be a traffic signal. John noted that a signal could be considered and a roundabout is shown for illustrative purposes.
 - > Damian asked where the southbound and northbound off ramp would touch down to the existing grade. Andrew noted the southbound would be able to tie in at the same approximate location of US 97. The northbound is located in the same location as today.
 - > Jenn asked if the clearance would be acceptable over US 97 in the existing configuration. Andrew noted that the concept is still high level and more evaluation will be needed but in the brief investigation that has been done 17’4” clearance would be achievable. John noted

the nearest constraint on US 97 is approximately 2,000' to the north (railroad undercrossing), which allows for changes to the existing ramps.

- Dave Warrick agrees the ramp would likely need to touchdown farther than the existing southbound ramp, if only for constructability purposes and to leave the existing ramp open.
- > Peter Russell suggested considering a split diamond interchange using China Hat/Ponderosa Street and Baker Road/Knott Road.
- Andrew noted that some typical options, such as a standard tight diamond, are also being investigated. A tight diamond could be looked at on the west side while keeping the east side the same as existing.
- Andrew noted one of the key considerations will be the need for space for turning movements on Baker Road/Knott Road and bicycle and pedestrian facilities, which will likely require widening the existing bridge. This can be done to one side, if possible, to reduce costs. Understanding how the trails and transit stops will connect to the proposed bicycle and pedestrian facilities will be important. He noted that widening the bridge will add cost but the width of total widening needed will only add nominal cost (for example: widening for 12 feet or 14 feet will be similar in terms of magnitude of cost).
 - > Bike and pedestrian concepts could include an undercrossing of Knott Road, similar to an example from the North Interchange project. A separate bike/ped structure over US 97 could be investigated as well.
- Chris Cheng asked about an underpass (and possibly raising US 97 a bit) if Arnold Canal is piped to provide an all ages and abilities alternative to the interchange. It could tie into the Arnold Canal Trail farther to the north.
 - > Andrew noted that bedrock is pretty close to the surface which could add cost. But there would likely be some desirability to cross there.
 - > Theresa asked if that option could support access to transit too (in terms of safe access with limited out-of-direction travel). Andrew said it could.
- Dave Warrick noted that typically you would go for a tight design in cases like this but with the railroad and Country Store, unique solutions (such as the roundabout flyover) should be investigated. He noted that a single point interchange offset on one-side was investigated in very early designs for the North Interchange.
 - > Dave Warrick noted that we will need to figure out the sideboards (such as railroad over Baker Road or taking the Country store).
 - > Andrew noted from an initial look, there could potentially be a ramp structure that fits between US 97 and east of the Country store, mostly within the existing right-of-way.
 - Dave Warrick said that that option would not necessarily address the access issues. Right-in, right-out access at Baker Court could be an unpopular solution.
- Peter Schuytema asked if there was any potential for a local roadway underpass of the railroad for the store and church. Many of the ideas would make it difficult to maintain the store access. Even left turn lanes would overlap between the southbound ramp and the store/church roadway.

- > Andrew noted it would be incredibly difficult to maintain store access and difficult to get vehicles under the railroad while still getting back to the grade of the interchange.
- Chris noted a two-direction ped/bike facility along the south side of the bridge and good crossing facilities could be a good option here to avoid a lot of the highway on/ramp conflicts between cars and people walking/biking.
 - > Andrew noted that is being investigated. A two-way facility would likely be better on the south side than the north side. Dave Warrick noted that the Center Street bridge in Salem is an example of that.
 - > Andrew asked if David Hirsch had any examples from his experience that could be an option. Dave said he would investigate options prior to the next workshop. He liked the idea of pushing turning movements away from the railroads to provide better space. Highway 36 and Rice Street in Roseville, Minnesota could be a good example.
 - Dave Warrick has an example from early work on the North Interchange that could be an option which he shared on screen.
- Peter Russell asked if we should consider options to buy the Country Store. Theresa asked if it in the community's best interest to remove the Country Store? Thinking bigger picture - is that an important community asset?
 - > Andrew said that the Country Store will be a discussion from a community and socio-economic standpoint.
 - > Peter Russell noted that with development in the thumb area, the Country Store would no longer be the only option in the area.
 - > Jenn Cline noted this is currently the only gas station in the area.
 - > Peter Schuytema noted that while it is more of a City of Bend land use issue, could the store be relocated to the thumb area along Knott Road?
 - Damian noted that the City would need to think more deeply about that option for the Country Store but he does not have any info on immediate plans for the development of the thumb.
- Peter Schuytema noted any alternative would need to be careful not to become its own blockage to access for people walking and biking by making it more difficult to travel through the interchange. In the future, this area will substantially change with all of the new development.
 - > Andrew agreed it will look and feel very different by 2040 than it does today.

PUBLIC COMMENT

- Greg Bryant (public) liked the flyover option to pull the traffic away from the railroad and noted the acceleration length for the ramp to get southbound on US 97 makes it difficult to get up to speed.

NEXT STEPS

- Ideas for interchange options should be sent to Don Morehouse in the next two weeks to allow for time to vet the potential options.
- Online open house will be coming shortly and invites to the Concept Evaluation Workshop will be happening shortly.