

COLLABORATION

# OR217 AUXILIARY LANE PROJECT

May 21, 2024



# SAFETY MINUTE – HEADS UP!

## Always Stay Alert on Construction Sites

- Check in with contractor on safety hazards and safety measures
- Watch where you are walking
- Be aware of anything above you
- Keep track of equipment on the site





# AGENDA

01 Introduction *(Kelly Martin)*

02 Project History and Schedule  
*(Kelly Martin)*

03 Inspection *(Ashan Fernando)*

04 Communication *(Kelly Martin)*

05 Traffic Control *(Matthew Phillips)*

06 Key Takeaways *(Ashan Fernando)*

07 Q & A

ALRIGHT STOP,  
COLLABORATE  
AND LISTEN

-Vanilla Ice





**Kelly Martin**  
Transportation PM – Region 1



**Ashan Fernando**  
CE&I, Project Coordinator



**Matthew Phillips, PE**  
Senior Project Engineer





# OBJECTIVES:

LESSONS LEARNED & BEST PRACTICES FOR COMBINED  
CONSTRUCTION MANAGEMENT TEAMS



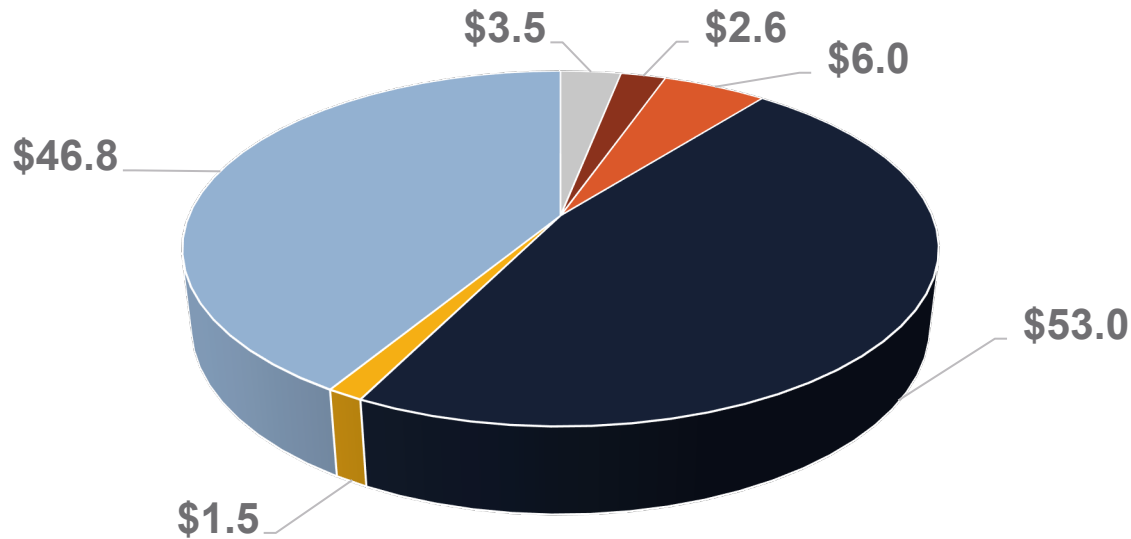
# HISTORY

- **2015** - Project started design to build a Frontage Road from Allen Blvd to Denney Rd
- **08/2017** - House Bill 2017 funded expansion of project scope
- **02/2018** - Northbound Auxiliary lane and Hall Blvd Bridge Replacement
- **07/2018** - Soundwalls were voted in
- **02/2019** - Allen Blvd / Denney Rd – Bridge Rail Retrofit, Protective Screening and Bridge Deck Overlay
- **02/2019** - Hall Blvd widening and Bike / Ped improvements
- Bike Ped improvements to be done by City of Beaverton
- **08/2019** - Scholls Ferry Rd Bridge Deck Overlay
- **06/2020** - Add VAS, Catwalks and ATR loops





# COST BREAKDOWN BY PROJECT ELEMENT (in Millions)



- Allen Blvd / Denney Rd Bridge Improvements
- Scholls Ferry RD Bridge Improvements
- North Hall Blvd Bike / Ped Improvements
- Northbound Auxiliary Lane, Soundwalls, South Hall Blvd Bridge Replacement
- ITS
- Southbound Auxiliary Lane, CD Road

# COST ESTIMATE

(at time of bid in 2021)

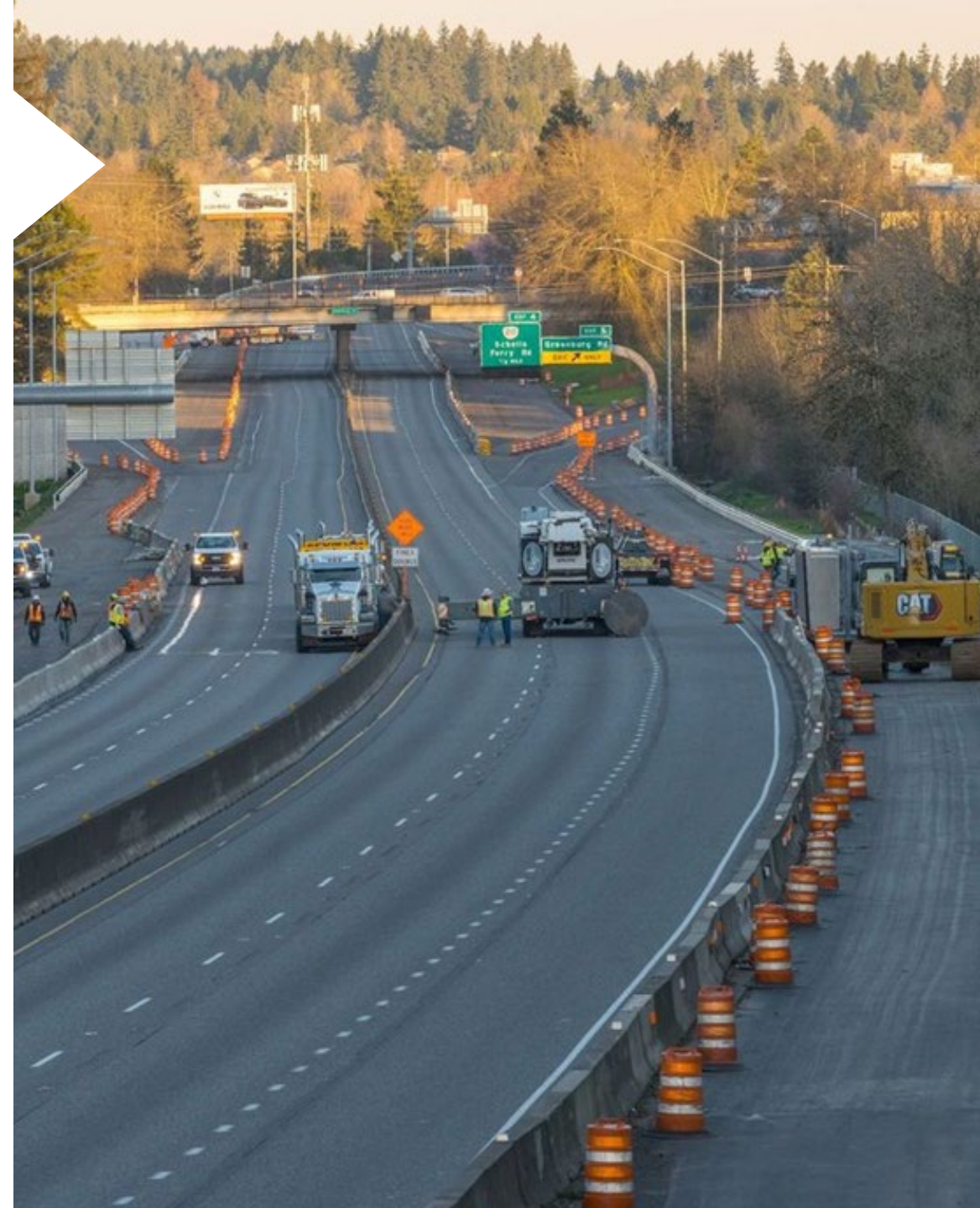
- Allen Blvd / Denney Rd – Bridge Rail Retrofit, Protective Screening and Bridge Deck Overlay (~\$3.5M)
- Scholls Ferry Rd Bridge Deck Overlay (~ \$2.6M)
- Hall Blvd – Bike / Ped improvements (~ \$6M)
- Northbound Auxiliary lane, Soundwalls and Hall Blvd Bridge Replacement (~ \$53M)
- ITS (~ \$1.5M)
- Southbound Auxiliary lane, CD Road (~ \$46.8M)

**INSPECTION**



# CONSTRUCTION MANAGEMENT TEAM

- RE - 1
- APM - 1
- Design Project Manager - 2
- PC - 3
- Senior Inspectors – 2-3
- Junior Inspectors - 3
- Entry Level Inspectors/Interns 3-5
- QCCS - 2
- Environmental Staff - 1
- Construction Survey – 1 Crew
- Construction Admin Specialists - 2



# CONTRACTOR & SUBS

- Prime – Kerr (Roadway/Storm/Sound Walls)
- Primary - Sub Contractors
  1. Cascade Bridge – Structures/Retaining Walls
  2. Mill Plain Electric – ITS/Signals/Illumination
  3. Pacific Foundations – Structure Foundations, Drilled Shafts, Retaining Walls
  4. Number of Total Subcontractors – 60, 35 trucking agreements



# STATUS

- Percent of Work Completed **80%**
- Milestones
  1. 5 Sound Walls Constructed
  2. Allen & Denny Structure Widening
  3. CD Line Constructed
  4. Retaining Walls – 7 Completed



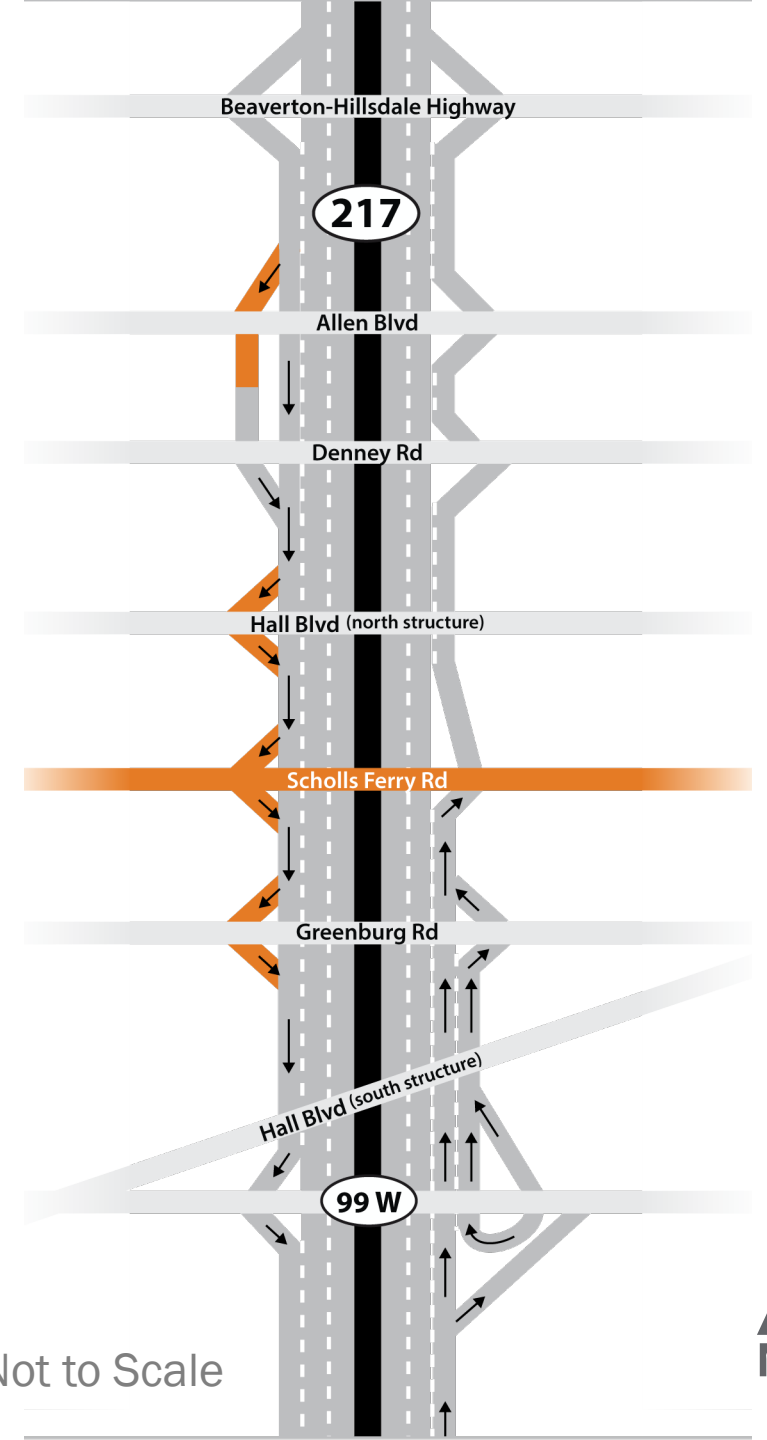
# WORK AREAS & SCHEDULE

## STAGE 1

### Elements

- SB Ramps (In progress)
- Allen-Denney Frontage Road (Complete)
- ITS (Complete)
- Soundwalls (Complete)
- Scholls Ferry Rd Bridge (In progress)
- Allen Ramp Structures (Complete)

POTENTIAL STAGING



\*Not to Scale

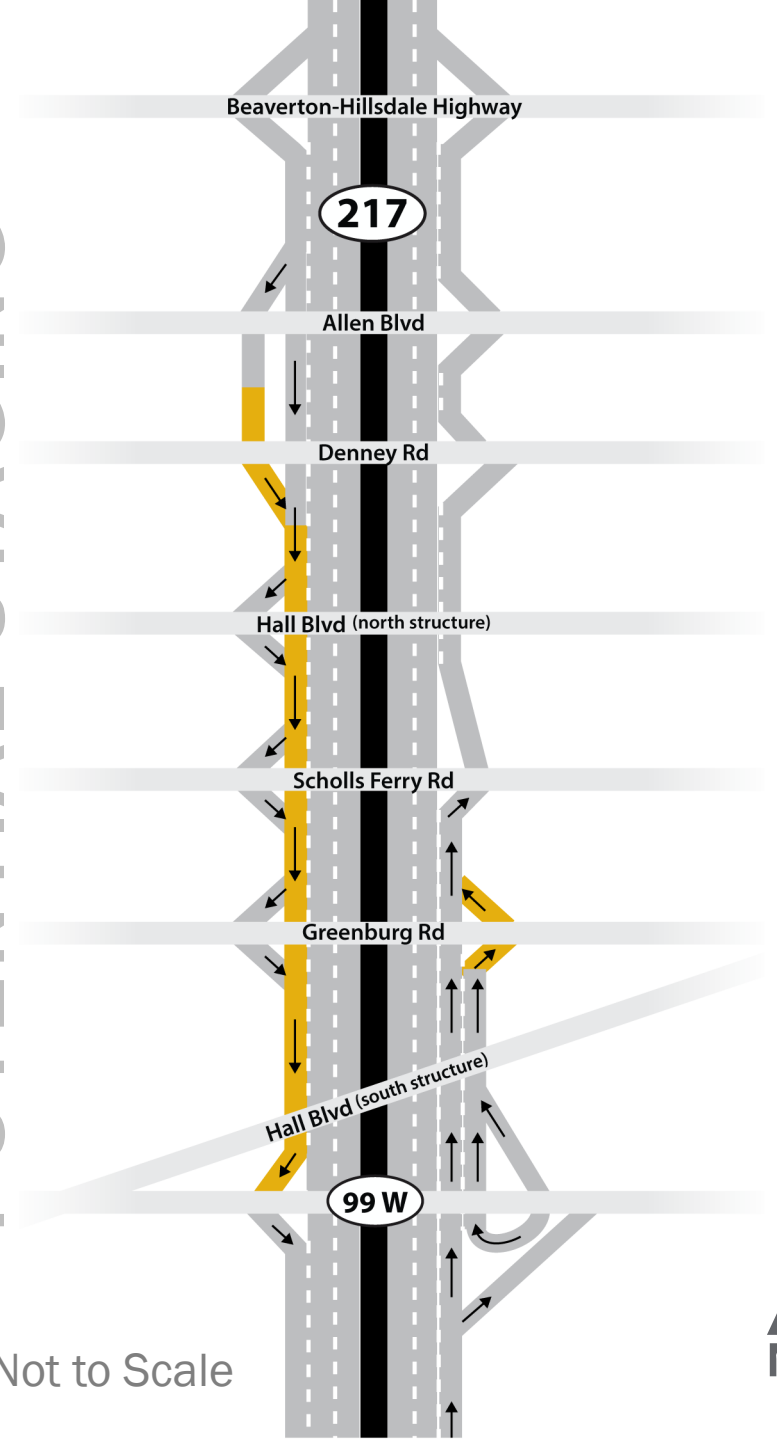
# WORK AREAS & SCHEDULE

## STAGE 2

### Elements

- SB Auxiliary Lane / Retaining Walls (In progress)
- Fanno Creek Bridge (Complete)
- Denney Ramp Structures (Complete)
- NB Greenburg Road Ramps (Complete)

POTENTIAL STAGING



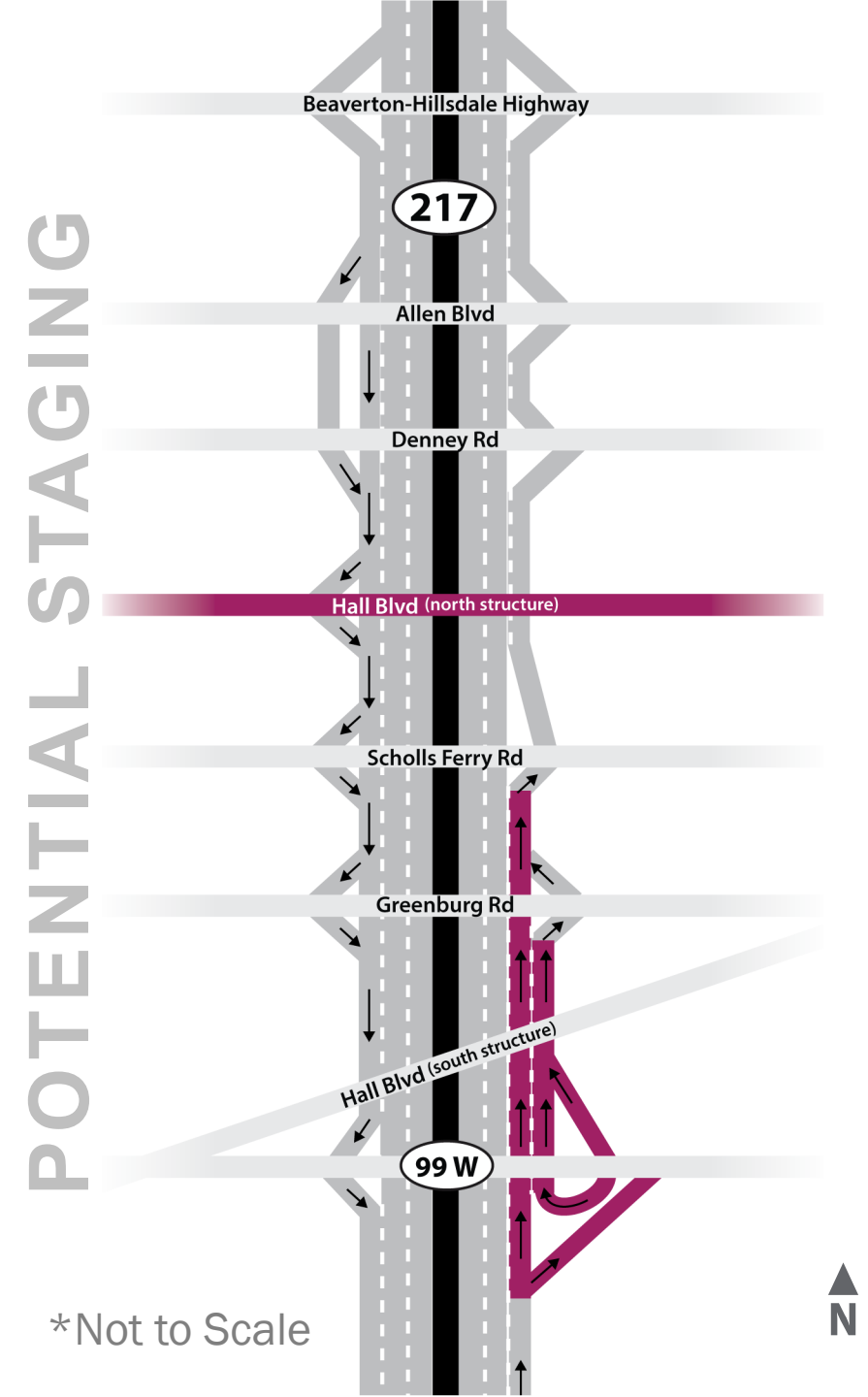


# WORK AREAS & SCHEDULE

## STAGE 3

### Elements

- North Hall Overpass Widening & Roadway Reconstruction (In progress)
- NB Auxiliary Lanes / Retaining Walls (In progress)



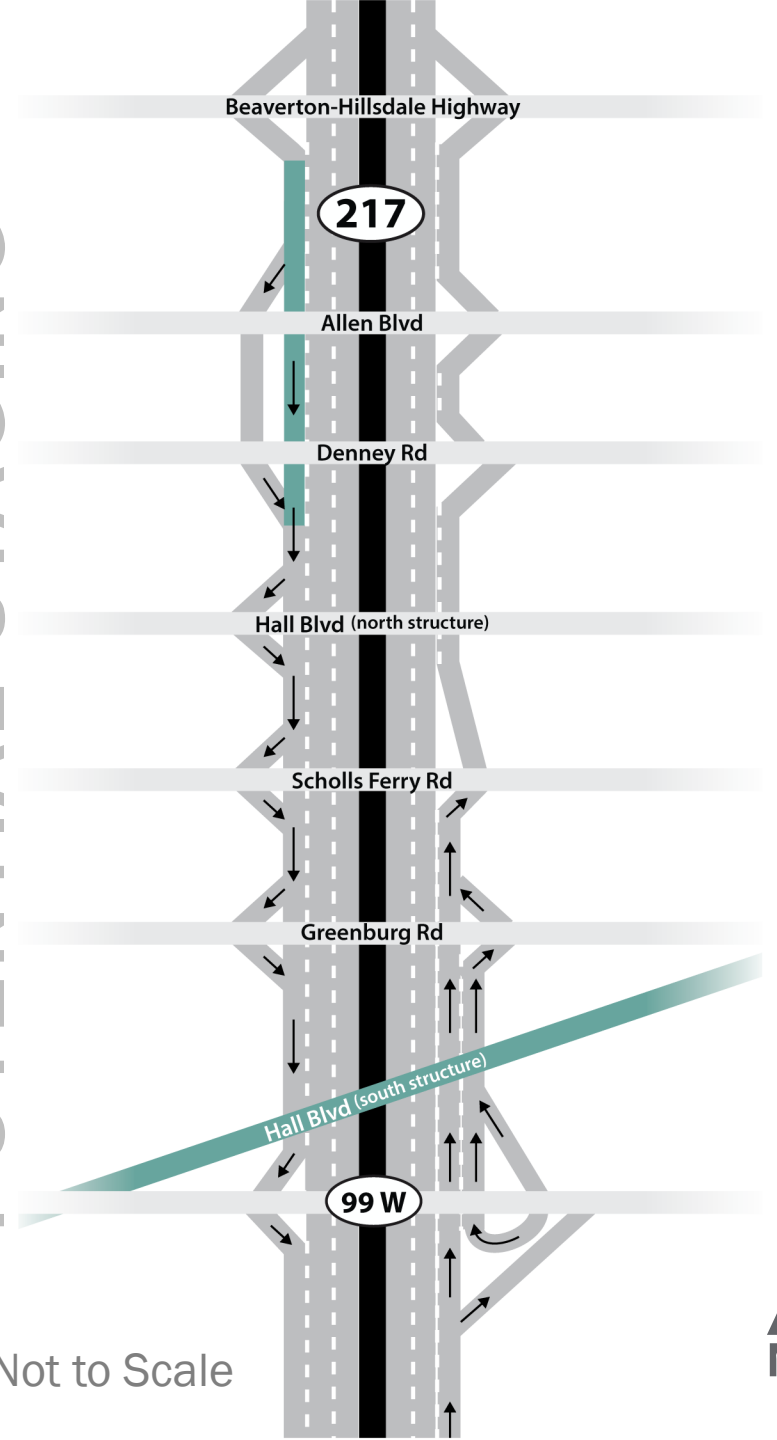
# WORK AREAS & SCHEDULE

## STAGE 4

### Elements

- SB Auxiliary Lane (Complete)
- South Hall Boulevard Overpass Replacement (In progress)

POTENTIAL STAGING



# ROADWAY

- Staged Construction
- High Ground Water Table
- Subgrade Stabilization to date – 42,000 SY
- Paving Quantity to date – 60,000 TONS



# STORMWATER & SWALES

- Swale Construction : 22 Stormwater Facilities
- Underground Detention
- Existing Utilities



# SOUNDWALLS

- Ground Water
- Interim Completion Date – Soundwalls
- Durisol Soundwalls



# RETAINING WALLS

- 3 MSE Walls
- 1 Cast In Place Wall
- 1 Soldier Pile Wall
- 2 Soldier Pile/Tieback Wall
- 2 Soil Nail Walls



# STRUCTURES

- Structure Widening – Allen/Denny/N. Hall
- Railroad
- Foundation
  1. Pile Driving
  2. Drilled Shafts
  3. Micro Pile



# ELECTRICAL

- ITS Network
- Signals
- Ramps
- Illumination





# ONGOING WORK

- N Hall Structure Widening
- S Hall Structure Demo and rebuild
- Median Work



**COMMUNICATION**

# DESIGN PHASE



**PDTs**



**Direct Designer to Designer Communication**



**One Team Approach**



**Identify Key Design Team Members Early**



**Identify Partner Agencies**



**Coordinate with Nearby Projects**



**Identify Design Team Members to Coordinate During Construction**



# PARTNER AGENCIES

- Tualatin Hills Parks and Recreation Department
- Clean Water Services
- City of Tigard
- Tigard Police
- City of Beaverton
- Beaverton Police
- City of Tualatin
- Willamette Water Supply Program
- Tualatin Valley Water District
- Washington County
- Tri-Met
- Pacific and Western Railroad
- Washington Square
- City of Portland
- Washington County Sheriff's Office
- Oregon State Police
- Tualatin Valley Fire and Rescue
- WCCCA (911)
- Metro West Ambulance
- AMR
- Regional Hospitals
- Multnomah County Health Department

# PARTNER WITH OTHER AGENCIES

- Partnering with the City of Beaverton and Tualatin Valley Parks and Rec
  - Sidewalk widening on Denney Rd
  - Bike path extension 105<sup>th</sup> to Allen Blvd
- Partnering with the City of Beaverton and Washington County
  - Widen the Northern Hall Blvd Structure
- City of Tigard signal base on Hall Blvd structure
- Multi-Agency coordination
  - Coordination meetings with over 20 agencies



# CONSTRUCTION MANAGEMENT TEAM

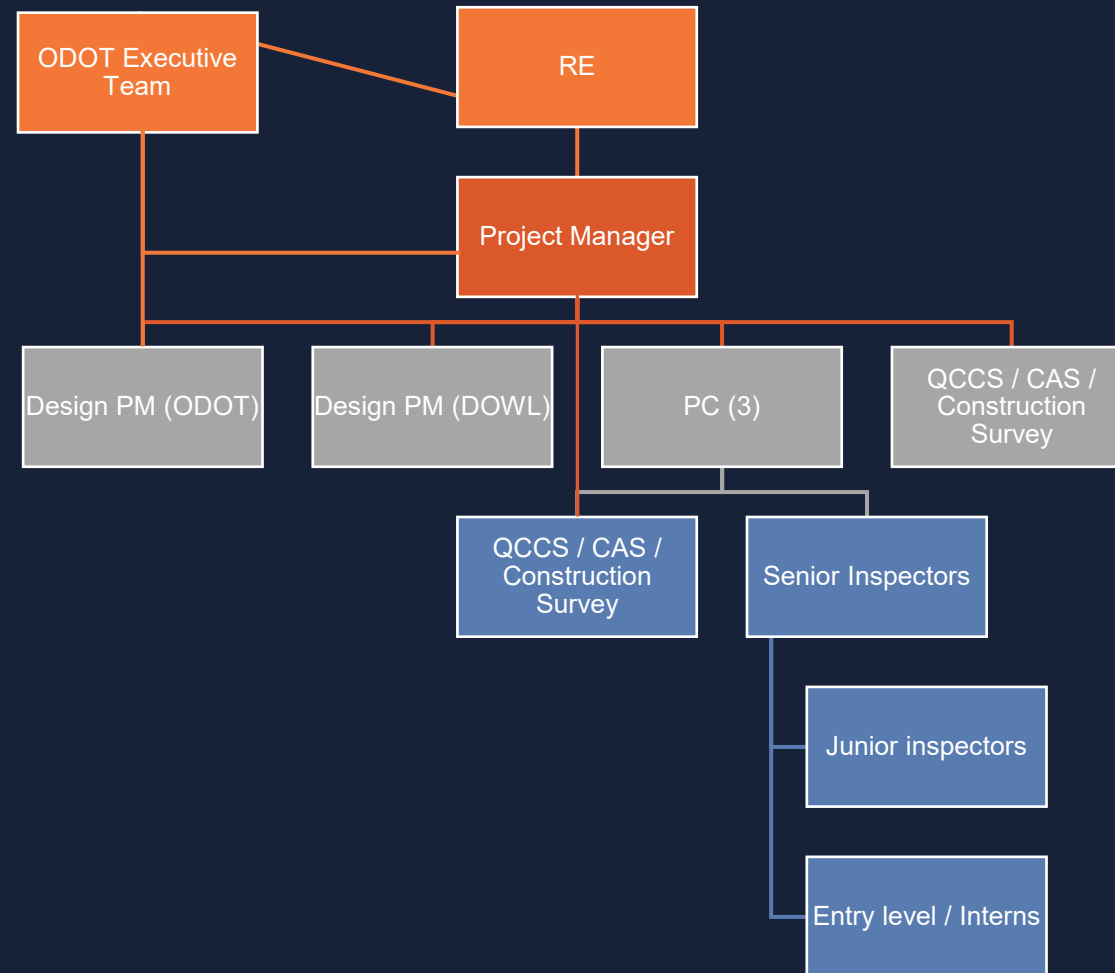
## COMMUNICATION IS KEY

### Communicate Often, Be Direct, Know your team

- **Leadership huddle every morning**
  - What are you working on today?
  - What do you need help with?
  - Do you have time to help someone else?
- **Leadership team has multiple targeted meetings each week.**
  - Identify specific priority tasks
  - Assign responsible person
  - Know who needs to communicate what to whom?
- **Regular Executive team check-ins**
  - Someone on the leadership team is talking to executive staff daily
- **PC's meet with Inspector's every afternoon**
  - What happened today?
  - Do you need help with anything?
  - What are your plans for tomorrow?
- **Build a team that trusts each other**
  - Apologize when you need to
  - Don't take the stress personally
  - Bond after hours

# CONSTRUCTION MANAGEMENT TEAM

COMMUNICATION IS KEY



# CONSTRUCTION SUPPORT TEAM

## Community Affairs

- Regular communication
- Keep the public informed

## Design Team

- Appointed design leads for each discipline

## ODOT Executive team

- Regular two-way communication

## Emergency Services

- Enhanced enforcement
- Communication as needed

## ODOT Maintenance

- Regular communication / coordination
- Jump in to help when needed



# ON (AND UNDER) THE GROUND TEAM

## **Contractor**

- Weekly Project Meetings
- Weekly Management Team Meeting
- Weekly PCO Meetings

## **Utilities**

- Continued weekly meetings with ODOT Utility Coordinator and Utilities

## **Local Agencies**

- Continued Coordination
- Attendance at Weekly Project Meeting
- Additional Meetings and Needed

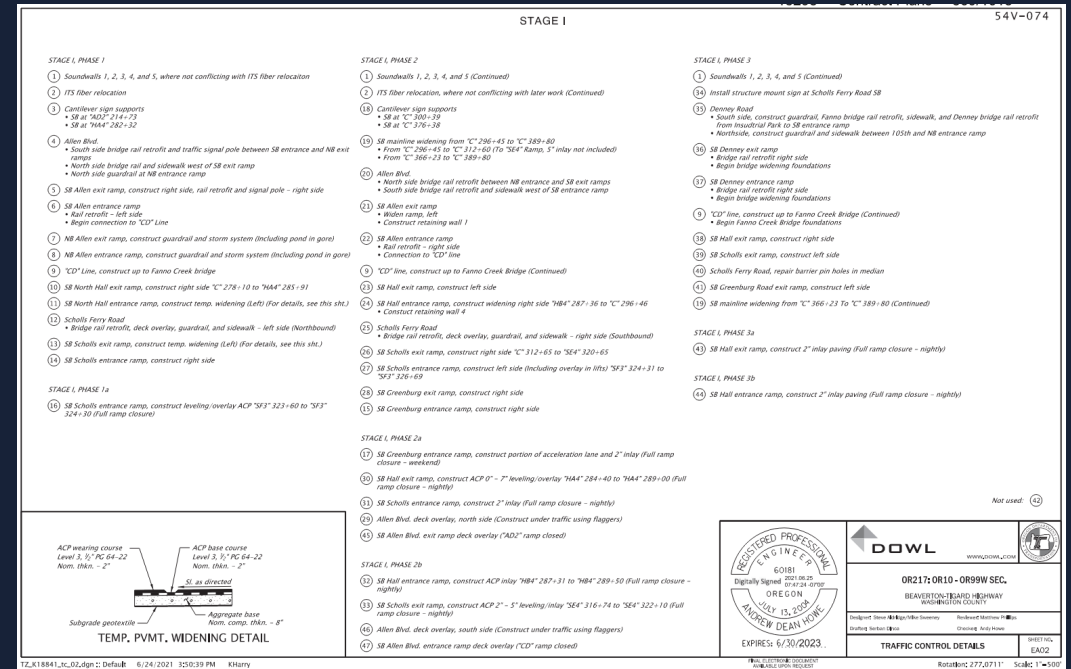
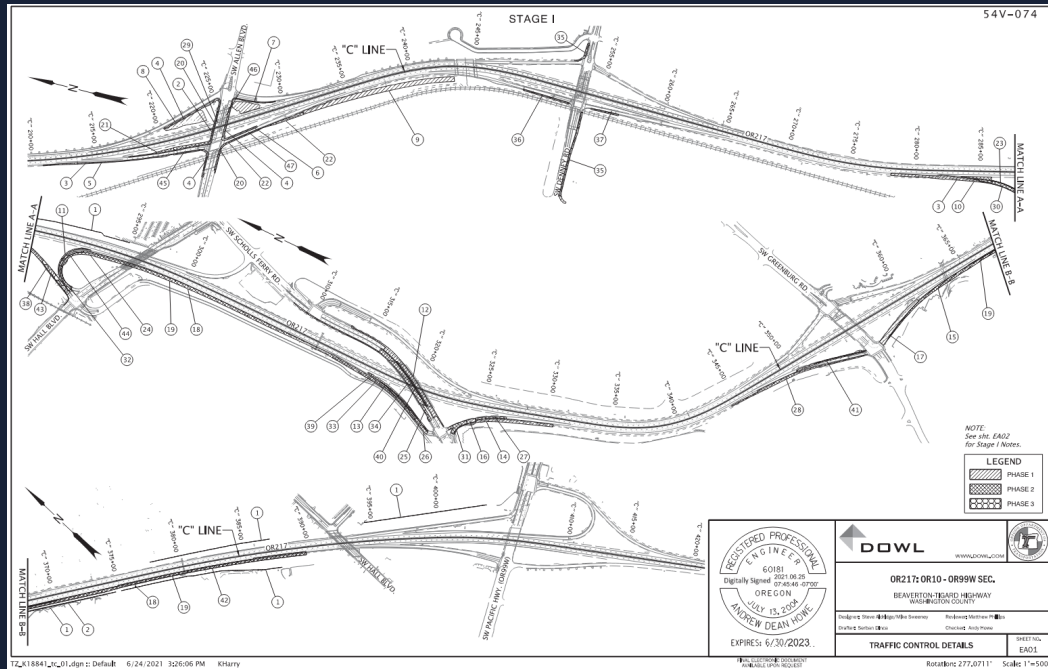
# TRAFFIC CONTROL



# SEQUENCING

## 5 Stages, 30 Phases

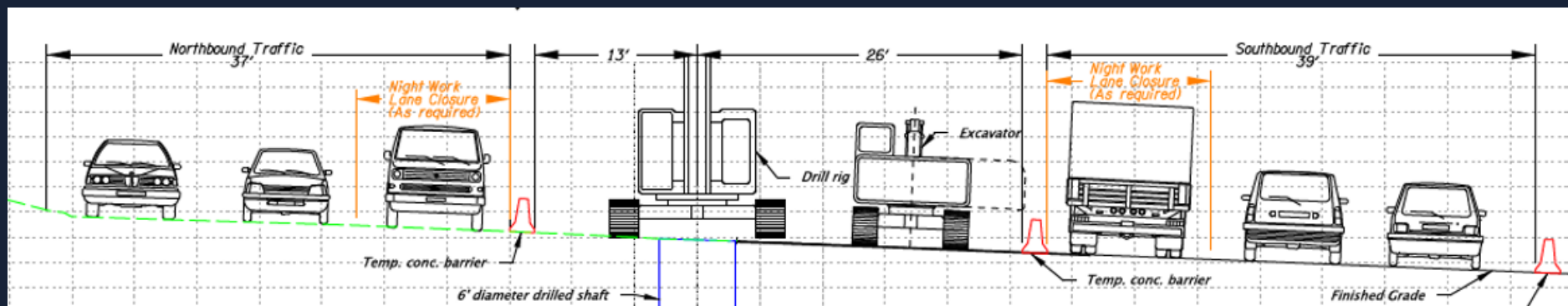
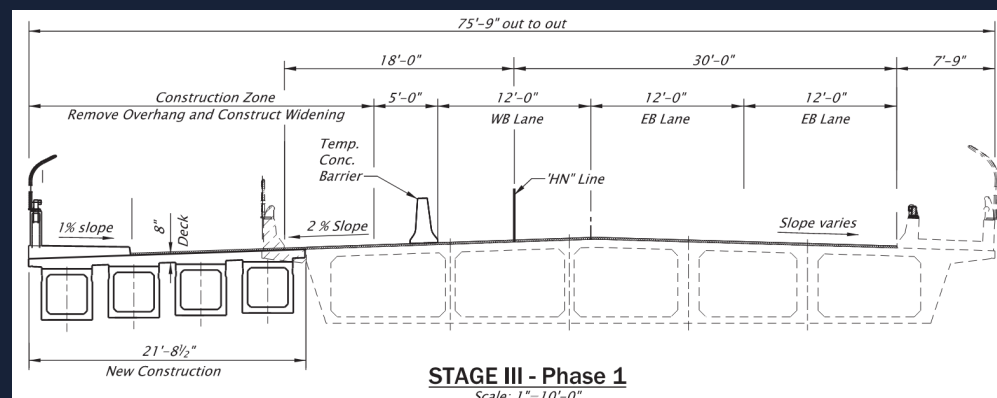
- Need to consider Constructability and Mobility through all 4 years of construction



# SEQUENCING EXAMPLE

## OR217 at North Hall Blvd bridge widening

- SB Entrance Ramp realignment and retaining wall
- OR217 Shoulder Repair
- SB widening
- Hall Blvd Bridge Southside Rail Retrofit
- Shift OR217 lanes for median bridge bent work and shift Hall Traffic to southside of structure.



# REVISIONS TO APPROVED TRAFFIC CONTROL PLAN

- Establish Intent
- Check Actual Field Conditions
- Overlay Contract Plan and Proposed Revisions
- Check Safety/Standards
- Impacts on Future Phases
- Be Super Responsive



# COMMON ISSUES

- Lane Merge Lengths
- Shifting Tapers / Temporary TCP alignments
- Conflicting Out of Sequence Work
- Last Minute / Unanticipated Closures
- Accel/Decel for Median Work



# LANE MERGE LENGTHS

## ENTRANCE RAMP DETAILS

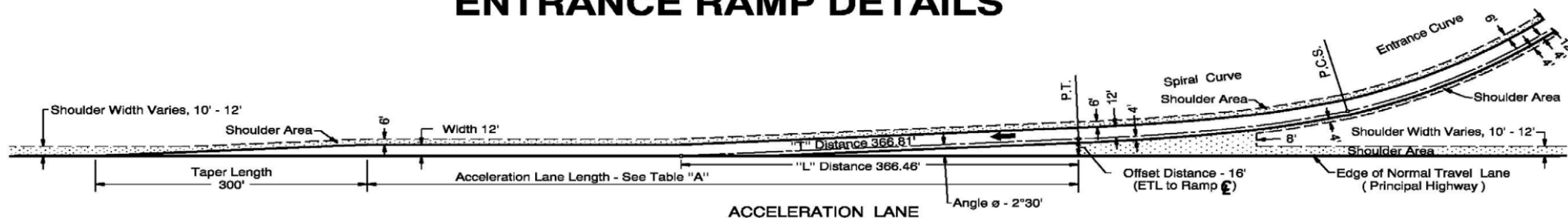


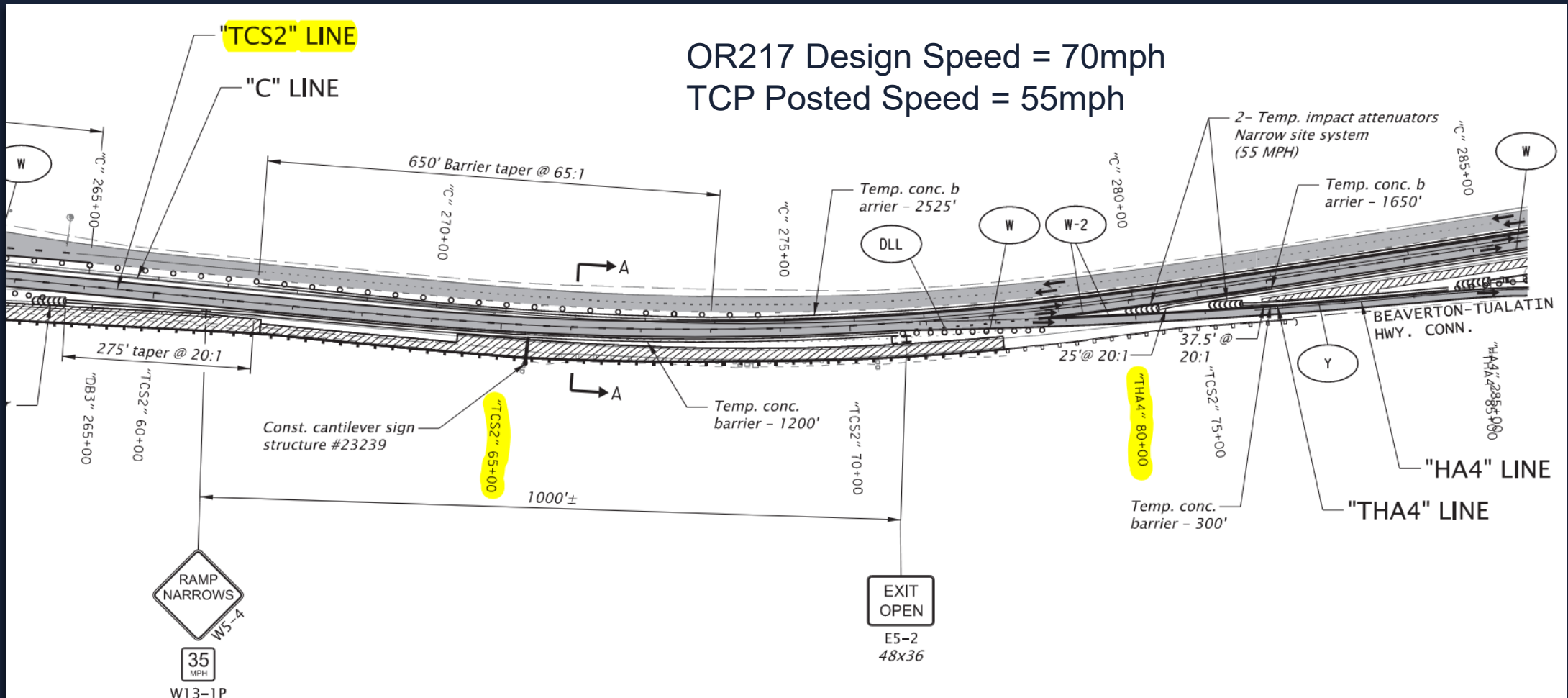
TABLE "A"  
MINIMUM ACCELERATION LANE LENGTHS

Design Speed of Turning Curve (mph)	25	30	35	40	45	50+
Minimum Curve Radius (ft.)	160	230	320	430	555	695
Design Speed of Highway (mph)	TOTAL LENGTH OF ACCELERATION LANE ( WITHOUT TAPER ) Length (ft.)					
40	540	540	540	540	540	540
45	540	540	540	540	540	540
50	550	540	540	540	540	540
55	780	670	550	540	540	540
60	1020	910	800	550	540	540
65	1220	1120	1000	770	*600	*540
70	1420	1350	1230	1000	820	*580

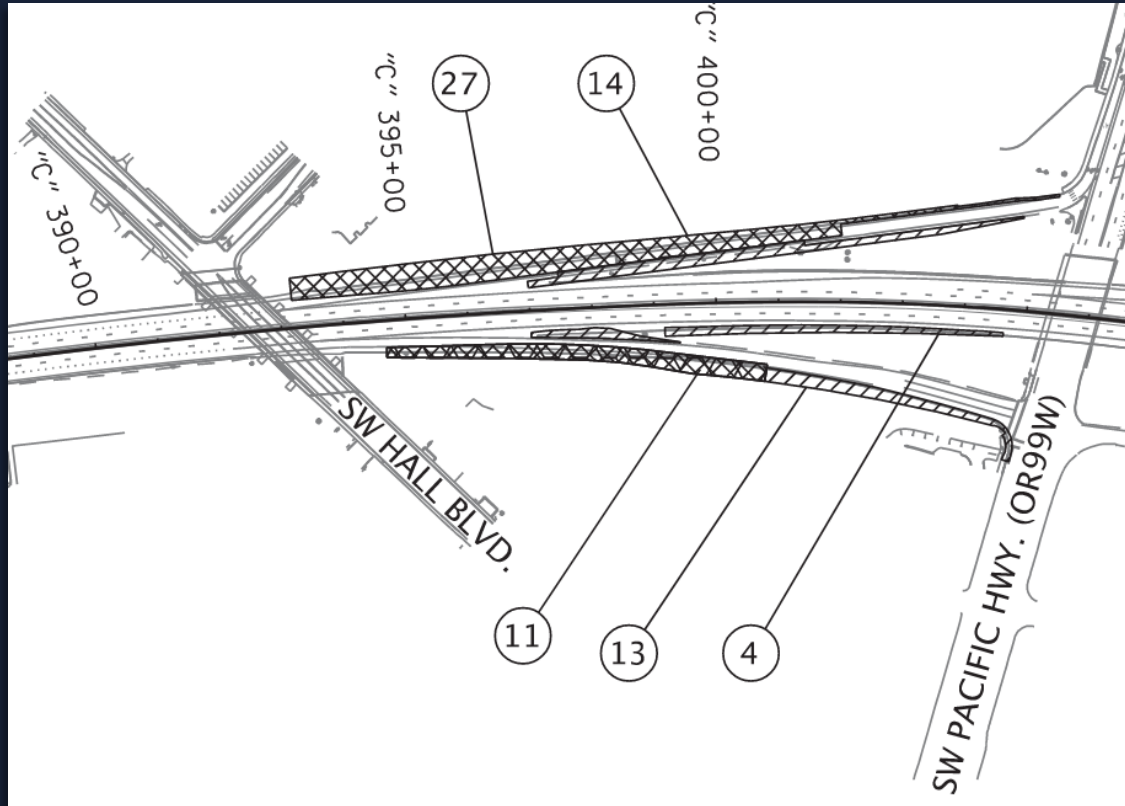
\* Desirable length is **750'**, this allows additional decision time for picking gaps.



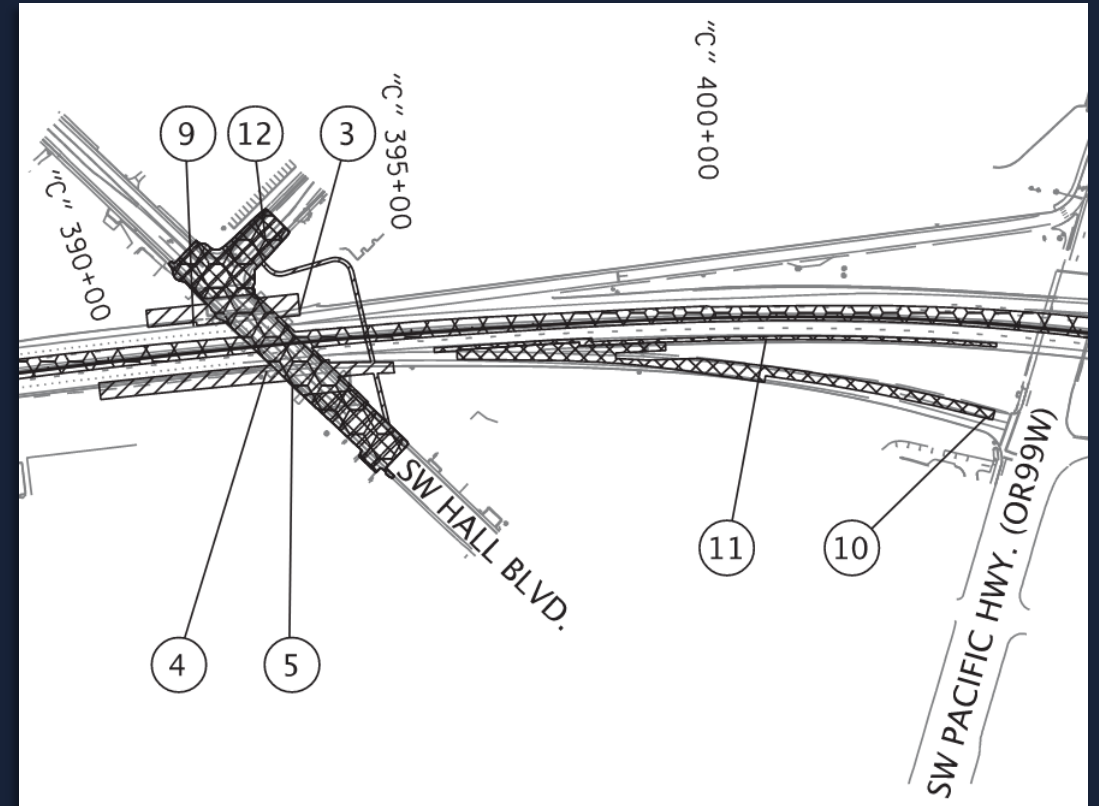
# SHIFTING TAPERS / TEMPORARY TCP ALIGNMENTS



# CONFLICTING OUT OF SEQUENCE WORK



STAGE 2



STAGE 4

# LAST MINUTE / UNANTICIPATED CLOSURES

Exit Ramp Closures

Ramp	Est. Month/Year	Closure Days/Hours	Detour
Exit 2b, Southbound, Off Ramp (Allen Blvd)	2022	24/7 for 8 months (directional – open to WB Allen only)	Exit 3 (Denny Rd) to OR217 NB to Exit 2B (Allen Blvd)
Exit 3, Southbound, On Ramp & Off Ramp (Denney Rd)	2022	24/7 for approx. 6 months	Exit 4A(Hall Blvd) to Scholls Ferry Rd to OR217 NV to Exit 2 (Denny Rd)
Exit 4A, Southbound, Off Ramp (Hall Blvd)	2022	9pm to 5am, any day of week	Exit 4B (Scholls Ferry) to Scholls Ferry Rd to Hall Blvd
Exit 4B, Southbound, Off Ramp (Scholls Ferry)	2022	9pm to 5am, any day of week 24/7 for 1 weekend (one time)	Exit 5 (Greenburg Rd) to OR217 NB to Exit 4 (Scholls Ferry Rd)
Exit 5 (Greenburg Rd), Southbound, Off Ramp	2022	9pm to 5am, any day of week 24/7 for 9 day (one time)	Exit 6 (OR99W) to OR217 NB to Exit 5 (Greenburg Rd)
Exit 6, (OR99W) Southbound, Off Ramp	2024	9pm to 5am, any day of week	Exit 5 (Greenburg) to Greenburg Rd to OR99W
Exit 6, (OR99W) Northbound, Off Ramp	2023	24/7 for days (one time)	Exit 5 (Greenburg) to OR217 SB to Exit 6 (OR99W)
Exit 5 (Greenburg), Northbound, Off Ramp	2022	9pm to 5am, any day of week	Exit 4 (Scholls Ferry Rd) to OR217 SB to Exit 5 (Greenburg)
OR217 Entrance Ramp at Kruse Way/I-5	2023	24/7 for 9 day (one time)	1-5 (SB and NB) to OR99W to Exit 6 OR217 NB

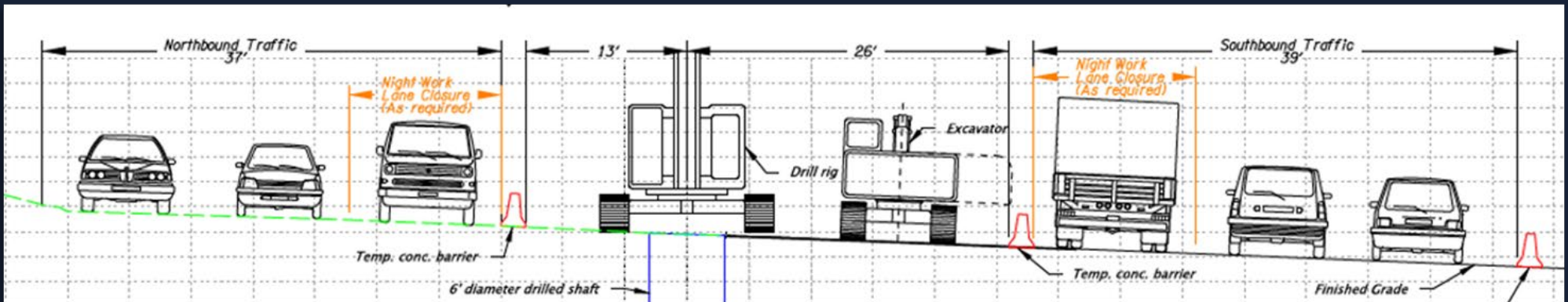
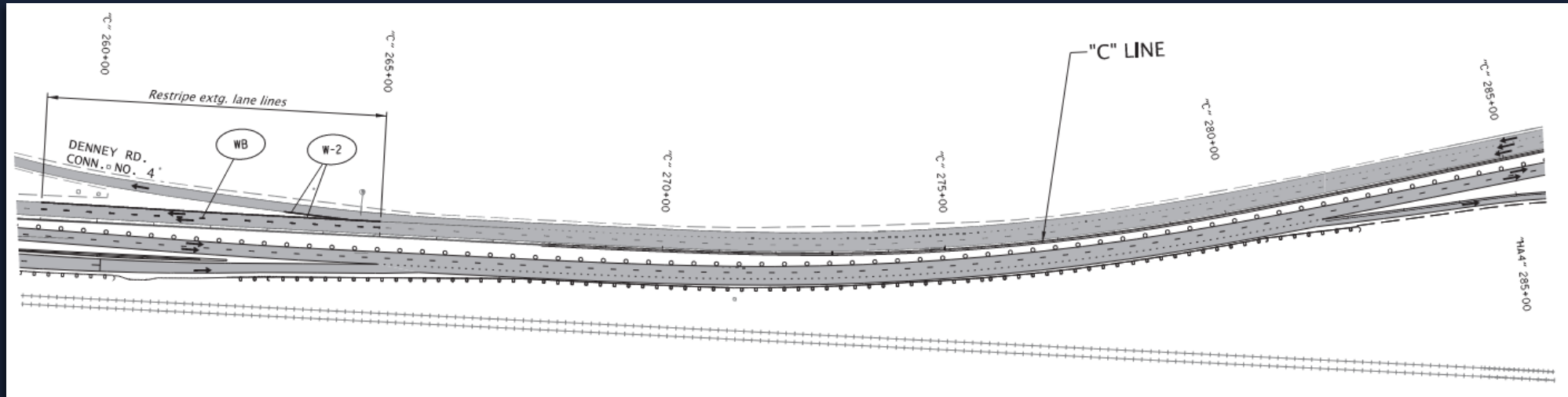
Table 2 –Road Closures

Notification	Condition
28 to 35* - Day Notification	Required for all full closures of state facilities

Table 2 –Road Closures

Notification	Condition
28 to 35* - Day Notification	Required of ramp is part of the <b>Critical Interchanges</b> listed in <b>Table 8</b>
14-day Notification	Required for all other ramp closures.

# ACCEL/DECEL FOR MEDIAN WORK



# OTHER PROJECT SPECIFIC ISSUES

- Narrow Corridor
- MASH barrier offset
- Existing F mix in the shoulders and gores
- Temp Striping Visibility and Existing Wheel Ruts
- TCD Refresh Due to Stage/Phase Duration
- Supply Chain Delay Impacts (Allen & Denney)



# LESSONS LEARNED





**OR 217**  
AUXILIARY LANES



# THANK YOU...

Any Questions? Comments?



# ICONS

