

Concept 8 Summary: I-84 Under Collector – Distributor (CD) Road - Mainline

DESCRIPTION

Concept 8 would lower I-84 to be below grade between Interchanges 2 and 8. The CD Road traffic will be above grade and at the same elevation as existing I-84. Other features of Concept 8 include:

- I-84 will have no local access between Interchanges 3 and 7.
- All local traffic oriented towards Interchanges 4, 5, and 6 will use the CD Road.
- Connections between I-84, Route 7, and the CD Road will only be at Interchanges 3 and 7.
- I-84 will be three lanes in each direction between Interchanges 2 and 8.
- CD Road will be two lanes in each direction.
- All entrance and exit ramps to/from I-84, Route 7, and the CD Road will be designed to current standards (right-hand side).
- Acceleration and deceleration lane lengths at the I-84, Route 7, and the CD Road interchanges will meet design standards.
- Lane continuity will be achieved within the limits of this concept.
- Shoulder widths will meet design standards under the open cut, cut and cover, and mined tunnel options (12 feet on either side). Under the bored tunnel option, shoulders will not meet the required 12 feet standard due to limitations in the size of the tunnel boring machine (maximum diameter of 58 feet).
- 6 new bridges, 17 existing bridges will be replaced, and 9 bridges will be removed.

Four construction methods of lowering I-84 were investigated for feasibility:

Description	Open cut	Cut and Cover	Mined Tunnel	Bored Tunnel
Construction Methods	Typical	Typical	Specialized	Specialized
Construction Equipment	Conventional	Conventional with Drill & Blast	Drill & Blast	Tunnel Boring Machine
Construction Duration	> 10 years	> 10 years	> 10 years	> 10 years
Right of way impacts during construction	Significant	Significant	Minimal	Minimal

PROS AND CONS

Description	Open cut	Cut and Cover	Mined Tunnel	Bored Tunnel
Reduces congestion on I-84 and Route 7	●	●	●	●
Improves highway mobility	●	●	●	●
Acceleration and deceleration lane lengths will meet design standards	●	●	●	●
Addresses lane continuity on I-84	●	●	●	●
Addresses left hand entrance and exit ramps on I-84	●	●	●	●
Route 7 traffic merging with I-84 has no weaving movements at Interchanges 4 and 8	●	●	●	●
Reduces congestion on CD Road at local road intersections	○	○	○	○
Does not address the weaving conditions on the CD Road between Interchanges 3 & 4 and 7 & 8	○	○	○	○
Requires raising local streets to meet the CD Road at-grade	○	○	○	○
Minimizes environmental impacts	○	○	○	○
Minimizes impacts to EJ community	○	○	○	○
Provides access to commuter park and ride lots during construction	○	○	○	○
Provides standard 12-foot shoulders on both sides of I-84	●	●	●	○
Enables faster emergency response based on shoulder width and confined spaces within the tunnel	●	○	○	○
Enables typical construction methods without requiring specialized equipment and/or labor	●	●	○	○
Does not require ventilation systems	●	●	○	○
Does not require disposal of large quantities of excavated material	●	●	○	○
Low long-term Operation and Maintenance Costs	●	○	○	○
Minimizes impacts to existing traffic during construction	○	○	●	●
Minimizes property impacts	○	○	●	●
Enables use of existing I-84 as a CD Road during construction	○	○	●	●

Key

- = Sub-concept Has Positive Effect (Pro)
- = Sub-concept Has Negative Effect (Con)

CONCEPT LIMITS



RECOMMENDATION

Concept 8 improves congestion and reduces mobility on I-84 and Route 7 but does not address congestion and mobility on the CD Road or at the interface with local roads. This concept will have constructability challenges regardless which construction method is used. The open cut and cut and cover tunnel methods require significant right-of-way. The bored and mined tunnel methods require specialized techniques, specialized equipment, and labor, raise safety and security concerns, and create long-term maintenance and operation of a tunnel. Potential impacts to properties within the EJ community are anticipated under this concept.

As a result of the screening process, it is recommended that this concept be dismissed for further consideration.