



## Open House #2 Summary Report


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APPENDIX C

## Open House #2 Meeting Presentation


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## US 6 and Wadsworth Boulevard Environmental Assessment Open House #2


February 12, 2008  
Lakewood Cultural Center, Lakewood




## Welcome



The mission of the Colorado Department of Transportation (CDOT) is to provide the best multi modal transportation system for Colorado that most effectively moves people, goods, and information.







## Agenda

- Update on the US 6 and Wadsworth Environmental Assessment progress
  - Summary of scoping
  - Where we are now
  - Next steps
- Alternatives screening process
- Concepts for the interchange
- Concepts for Wadsworth Boulevard



## Meeting Format

- Presentation
- Open house information stations
- Reference materials
- Tonight's goals:
  - Update stakeholders on the US 6 and Wadsworth Environmental Assessment progress
  - Collect input on alternatives screening criteria and design concepts for the interchange and Wadsworth Boulevard


## National Environmental Policy Act (NEPA) Process

- Define scope of study
- Define the purpose and need
- **Develop and analyze alternatives**
- Identify Impacts
- Determine Mitigation
- EA Document
- Final Decision

## What We Have Done


- Completed project scoping
  - Gathered data on existing conditions
  - Attended neighborhood and business group meetings
  - Held public and agency scoping meetings
  - Solicited comments on important issues to include in the study
- Defined the project purpose and identified transportation needs
- Established an accelerated schedule for the study (final decision anticipated in December 2008)
- Developed and screened design concepts – presented at today's meeting



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## Key Issues Heard During Scoping

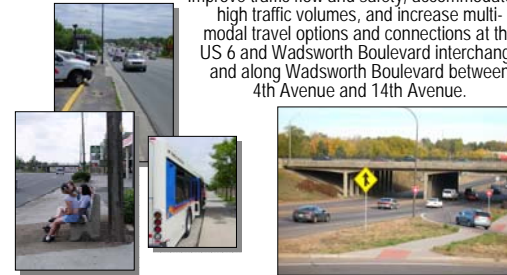

- Noise levels at residences along US 6
- Speed and volume of traffic on neighborhood streets
- Property acquisition or relocations
- Construction timing and phasing
- Interaction with RTD West Corridor
- Accidents and high speeds on Wadsworth and at the interchange
- Facilities for bicycles and pedestrians
- Business access
- Support for project improvements and recognition of transportation problems
- Public outreach is important and should be continued



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## Project Purpose


Improve traffic flow and safety, accommodate high traffic volumes, and increase multi-modal travel options and connections at the US 6 and Wadsworth Boulevard interchange and along Wadsworth Boulevard between 4th Avenue and 14th Avenue.

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## NEPA Process Schedule


- Scoping (Completed)
- Purpose and Need (Completed)
- **Develop and Analyze Alternatives**
  - Level One Screening of Design Concepts (February 2008)
  - Level Two Evaluation (March 2008)
  - Preferred Alternative (April 2008) (public open house #3)
- Identify Impacts (April to August 2008)
- Determine Mitigation (April to August 2008)
- EA Document (August to December 2008)
- Final Decision (December 2008)



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## Alternatives Development


- Design concepts identified from past experience and stakeholder input
  - What are the transportation needs?
  - What would be appropriate for the project area?
  - What do stakeholders want?
- Separate concepts for the interchange and Wadsworth Boulevard
- Criteria developed for two levels of evaluation



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## Evaluation Criteria


- Criteria developed from scoping input
- **Level 1 Screening**
  - Identify a reasonable range of project improvements that meet project purpose and need
  - Eliminate concepts with a "fatal flaw" in any criteria (Yes / No)
  - Supported by professional judgment
- **Level 2 Evaluation**
  - Quantitative comparison of the concepts carried forward from the Level 1 Screening
  - Each criterion rated as "good," "fair," or "poor"
  - Priorities identified by project participants and stakeholders



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## Level 1 Screening Criteria

<ul style="list-style-type: none"> <li>▪ <b>Safety/Design</b> <ul style="list-style-type: none"> <li>– Feasible from an engineering perspective?</li> <li>– Accommodate safer bicycle and pedestrian travel?</li> <li>– Improve weaving/merging conditions?</li> <li>– Decrease access conflicts?</li> </ul> </li> <li>▪ <b>Mobility/Traffic Operations</b> <ul style="list-style-type: none"> <li>– Meet current and future traffic needs?</li> <li>– Address interaction of Carr/Garrison Street US 6 ramps?</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ <b>Local Impacts</b> <ul style="list-style-type: none"> <li>– Maintain access to residences and businesses?</li> </ul> </li> <li>▪ <b>Environmental Impacts</b> <ul style="list-style-type: none"> <li>– Significant impacts that cannot be mitigated?</li> </ul> </li> <li>▪ <b>Cost Feasibility</b> <ul style="list-style-type: none"> <li>– Constructed within 150 percent of estimated costs?</li> </ul> </li> <li>▪ <b>Implementation</b> <ul style="list-style-type: none"> <li>– Compatible with local plans?</li> <li>– Compatible with RTD light rail?</li> </ul> </li> </ul>
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**Interchange Concepts**

- Concepts developed to meet specific conditions of the project area
  - Highway to regional roadway connection (service interchange)
  - High traffic volumes
  - Developed urban area
  - Constrained right-of-way
- Eight design concepts considered
  - 4 selected for further evaluation
  - 4 eliminated because of right-of-way impacts, costs, or incompatibility with transportation needs

**Interchange Concepts Evaluated**

- Traditional Diamond
- Tight Diamond
- Tight Diamond with Loop
- Single Point Urban Interchange
- Partial Cloverleaf
- Partial Cloverleaf with Directional Ramp
- Full Cloverleaf with Collector/ Distributor Roads
- Diverging Diamond

*Carried Forward to Level 2 Evaluation*

**Tight Diamond**

- I-70 and Federal Boulevard
- US 6 and Indiana Avenue
- I-70 and Denver West Boulevard

**Tight Diamond**

- Pros
  - Eliminates weaving conflicts
  - Reduces pedestrian and bicyclist conflicts
  - Lower right-of-way requirements than traditional diamond interchange
  - Moderate construction costs
  - Common interchange type
  - Better spacing between ramp terminal and external intersections than traditional diamond interchange

**Tight Diamond**

- Cons
  - Less capacity for high volume movements
  - Does not accommodate heavy left turns well
  - Complex signal timing
  - Higher number of conflict points
  - Two intersections required
  - Increased construction costs (more than traditional diamond interchange) due to retaining walls

**Tight Diamond with Loop**

- I-25 and Colorado Boulevard
- I-25 and Castle Pines Parkway

**Tight Diamond with Loop**

**Pros**

- Eliminates weaving conflicts
- Improves capacity over tight diamond without loop
- Better capacity for highest volume movement
- Reduces pedestrian and bicyclist conflicts
- Moderate construction costs
- Common interchange type

**Tight Diamond with Loop**

**Cons**

- Does not accommodate heavy left turns well
- Two intersections required
- Higher number of conflict points
- Maintains one loop that presents pedestrian and bicyclist conflicts
- Requires more right-of-way than tight diamond without loop

**Single Point Urban Interchange (SPUI)**

- C-470 and Morrison Road
- I-25 and University Boulevard
- US 85 (Santa Fe) and Evans Avenue

**Single Point Urban Interchange (SPUI)**

**Pros**

- Eliminates weaving conflicts
- Improves capacity by consolidating signals and allowing for increased vehicle storage
- Requires less right-of-way
- Consolidates intersection conflict points
- Improves pedestrian and bicyclist crossings
- Allows opposing left turns to proceed simultaneously (and improves turning radius for trucks)

**Single Point Urban Interchange (SPUI)**

**Cons**

- Higher cost of construction because of longer bridge span and retaining walls
- Wider intersection has longer intersection crossing distance, which can result in more accidents
- Left turns appear "head to head" to turning traffic from the exit ramps (less familiar to drivers)

**Partial Cloverleaf**

- US 36 and Federal Boulevard
- US 285 and US 85 (Hampden and Santa Fe)

**Partial Cloverleaf**

- Pros
  - Eliminates weaving conflicts
  - Better capacity for highest volume movement
  - Highest capacity interchange (of interchanges recommended for evaluation)
  - Reduces left turn conflicts (as compared with other interchange types)

**Partial Cloverleaf**

- Cons
  - Higher right-of-way requirements, particularly in southeast loop
  - Maintains two of four loops that present bicyclist and pedestrian conflicts
  - Close spacing between ramp terminals and external intersections

**Wadsworth Boulevard Options**

- Concepts developed to meet specific conditions of the project area
  - Match or complement improved roadway sections north and south of the project area
  - Compatible with adopted local and regional plans and visions
- Eleven concepts developed based on three main elements
  - Travel lanes
  - Medians
  - Sidewalks

**Travel Lanes**

- Lanes that carry vehicles on a roadway
- Do not include auxiliary lanes, such as left- and right-turn lanes
- Typically 12 feet wide

**Medians**

- Medians can be painted or raised

Alameda Avenue west of Union Boulevard      Wadsworth Boulevard south of project area

**Medians (continued)**

- Raised medians are recommended for arterials with
  - High traffic volumes
  - Many driveways
  - Large number of pedestrian crossings
- Advantages of raised medians
  - Reduced crash rates and points of conflict
  - Improved traffic flow
  - Pedestrian refuge at roadway crossings
  - Landscaping opportunities can provide aesthetic benefits

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## Sidewalks

- Sidewalks can be used by both pedestrians and bicyclists, depending on their width
  - 5 to 8 feet wide for pedestrians
  - 8 feet or wider for both pedestrians and bicycles
- Sidewalks can be attached or detached
- Detached sidewalks are generally considered safer than attached sidewalks





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## Wadsworth Boulevard Concepts

- Intelligent Transportation System Strategies Only
- Intersection Improvements + Median
- 4 Lane + Median + Sidewalks
- 5 Lane + Median + without Sidewalks
- 5 Lane + Median + Sidewalks
- 6 Lane + Median + without Sidewalks
- 6 Lane + No Median + Sidewalks
- ➔ **6 Lane + Median + Sidewalks**
- 6 Lane + Two Way Left Turn + Sidewalks
- 6 Lane Transit (4 Travel + 2 Dedicated Transit)
- 8 Lane Transit (6 Travel + 2 Dedicated Transit)

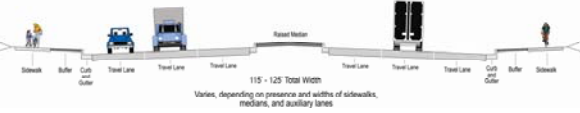

**Carried Forward to Level 2 Evaluation**



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## Wadsworth Boulevard Concept


- 6 Lanes with Medians and Sidewalks
- Multiple alternatives could be developed in Level 2 Evaluation that vary these elements
  - Width of elements
  - Alignment of roadway

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## Level 2 Conceptual Design


- Refinement of design alternatives
  - Preliminary dimensions for elements
  - Preliminary construction limits
  - Preliminary right-of-way impacts
- Initial results provide basis for selecting a Preferred Alternative
  - Comparing alternatives
  - Rating criteria
- Additional mitigation will be incorporated to refine the preferred alternative



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## Level 2 Evaluation

- Detailed criteria to measure relative performance of alternatives
- Measures are presented for the same criteria screened in Level 1
- Looking for input on the measures and the priority of the criteria (see Handout)



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## Questions and Comments

- Display boards and reference materials provide background information
- Comment sheets are available at the comment table
- Of particular interest are your thoughts on
  - Priorities of the evaluation criteria
  - Design concepts for interchange and Wadsworth Boulevard presented at today's meeting
  - Level 1 screening results
- Comments for this phase of the study would be most helpful in the next 30 days

**Visit [www.US6Wadsworth.com](http://www.US6Wadsworth.com)**

