



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

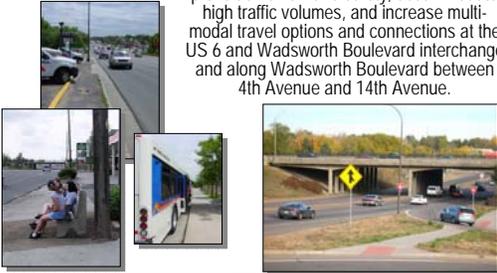
- Noise levels at residences along US 6
- Speed and volume of traffic on neighborhood streets
- Property acquisition or relocations
- Construction timing and phasing
- Interaction with RTD West Corridor
- Accidents and high speeds on Wadsworth and at the interchange
- Facilities for bicycles and pedestrians
- 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"> ▪ Safety/Design <ul style="list-style-type: none"> – Feasible from an engineering perspective? – Accommodate safer bicycle and pedestrian travel? – Improve weaving/merging conditions? – Decrease access conflicts? ▪ Mobility/Traffic Operations <ul style="list-style-type: none"> – Meet current and future traffic needs? – Address interaction of Carr/Garrison Street US 6 ramps? 	<ul style="list-style-type: none"> ▪ Local Impacts <ul style="list-style-type: none"> – Maintain access to residences and businesses? ▪ Environmental Impacts <ul style="list-style-type: none"> – Significant impacts that cannot be mitigated? ▪ Cost Feasibility <ul style="list-style-type: none"> – Constructed within 150 percent of estimated costs? ▪ Implementation <ul style="list-style-type: none"> – Compatible with local plans? – Compatible with RTD light rail?
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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)

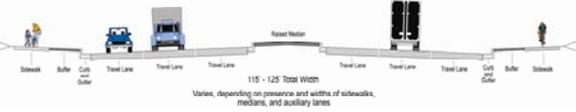
Carried Forward to Level 2 Evaluation



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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

