FULL CLOSURE DURING CONSTRUCTION
A Tool for Reducing Overall Traffic Impact and Satisfying the Public

John La Sala, PE, PTOE  City and County of Denver
THE OVERALL PROJECT

- New Storm Sewer system to mitigate ongoing flooding
- Street Reconstruction:
  - University and Josephine reconstructed in concrete for 6 blocks

Addressing some of the worst pavement conditions in the City
PURPOSE OF FULL CLOSURE

• Combine up to five phases of construction into one
• Accelerate project completion
• Reduce overall impact to the public
• Bring shoppers back to Cherry Creek sooner
Today’s Announcements

INTERSECTION CLOSURE SCHEDULED
- Full closure of the 1st Avenue and University Boulevard intersection will occur to facilitate paving of the intersection and reduce prolonged impacts to commuters
  - Intersection paving will now occur in one (1) phase instead of 2-3 phases

PROJECT ACCELERATION
- New project completion date is November 1, 2014 (moved up three weeks from November 21)
- Early completion supports early start of the holiday shopping season
COORDINATION AND STAFFING

- Meetings with public bus agency (RTD), emergency services and Denver Traffic Engineering
- Internal project team meetings (City, Parsons, contractor)
- Throughout duration of closure, City staffed at least one engineer and three inspectors
- Parsons (CM) and the contractor also staffed oversight personnel
- All City personnel carried an Operations Plan notebook
Asphalt removal
Survey and fine grading
Installation of traffic signal conduit
Subgrade preparation and testing
Concrete paving
  - 500 cubic yards total
  - Three passes using a slip-form paver
  - Four sections utilizing hand pouring
Sawcut new concrete
Asphalt tie-ins to existing, adjacent pavement
Temporary striping
Sawcut and seal concrete
Removal of traffic control
PAVEMENT POUR SEQUENCE

- THREE SEPARATE PAVER PASSES = 780 SY AND 239 CY
- FOUR HAND POUR PASSES = 864 SY AND 253 CY

TOTAL CONCRETE PAVEMENT 1,596 SY AND 492 CY

NOTE: TRAFFIC ALIGNMENT AND WORK AREA ARE GENERAL DEPICTIONS INTENDED TO PROVIDE A BASIC UNDERSTANDING OF OPERATION. TRAFFIC SPECIFIC WILL BE DERIVED AND CHANGED BY SURVEY LAYOUT AND STATING. INTENDED TO BE USED AS A LIVING DOCUMENT UNTIL START OF ACTUAL PAVEMENT AND IS SUBJECT TO CHANGE DUE TO WEATHER AND UNKNOWNS CIRCUMSTANCES.
NOTES:
1. E. 1ST AVE AND UNIVERSITY BLVD INTERSECTION SHALL BE CLOSED ON MONDAY, SEPTEMBER 30, 16 P.M. TO TUESDAY, OCTOBER 1, 6 A.M.
2. COORDINATION SHALL OCCUR WITH COST FOR USAGE OF VMS MESSAGE BOARD, BOTH FOR SOUTHBOUND TRAFFIC AND EAST NORTH OF IL-AMARILLO JCT AND FOR NORTHWARD TRAFFIC JUST SOUTH OF IL-AMARILLO JCT.
3. COORDINATION SHALL OCCUR AND EMERGENCY RESPONSE PLAN SHALL BE IN PLACE TO ALLOW EMERGENCY RESPONDERS ACCESS THROUGHOUT DURING INTERSECTION AS needed. SEE NOTE ON DRAFT & HAND HELD MESSAGE BOARD FOR INFORMATION.
4. DRAGG WILL BE PLACED AT 15' IN ADVANCE OF THE CLOSURE, AND TOUCHES WITHIN 15' MARKS OF MODIFYING INTERSECTION COMPLETELY.

LEGEND:
- DETOUR SIGNAGE - SPECIAL 01
- TYPE 3 BARRICADE WITH R1-53 ON SIDES OF ROAD TO CALL ATTENTION TO DRIVER
- PORTABLE VMS CLOSURE MESSAGING DURING EVENT
- PORTABLE VMS BUSINESS MESSAGING DURING EVENT
- PORTABLE VMS PRE-CLOSURE MESSAGING BEFORE EVENT
- ALTERNATE EAST-WEST ROUTES
- ALTERNATE NORTH-SOUTH ROUTES
- E. 1ST AVE AND UNIVERSITY BLVD INTERSECTION CONSTRUCTION

UNIVERSITY AND JOSEPHINE PAVEMENT AND DRAINAGE IMPROVEMENT PROJECT
E. 1ST AVE AND UNIVERSITY BLVD INTERSECTION CLOSURE - DETOUR PLAN

DRAFT - For Comment purposes only
September 3, 2014
Page 5 of 8
SOFT AND HARD CLOSURE PLAN

LEGEND:
- INITIAL EMERGENCY RESPONDER ACCESS THROUGH INTERSECTION CONSTRUCTION
- ENCOURAGED BIKE AND PED ACCESS
- SOFT CLOSURE
- HARD CLOSURE
- HARD CLOSURE EXCEPT TO PRIVATE BUSINESS ACCESS
- BUSINESS ACCESS CLOSURE
- BUSINESS ACCESS TO REMAIN OPEN
- OFFICER STATION (5)
- FLAGGER STATION (6)
- E. 1ST AVE AND UNIVERSITY BLVD INTERSECTION CONSTRUCTION
- SPECIAL SIGN AS NOTED
- RH4 (SIDEWALK CLOSED) SIGN

NOTES:
1. SOFT CLOSURE DEFINED AS LOCAL ACCESS ONLY TO RESIDENTIAL AND BUSINESS AREAS AND THROUGH TRAFFIC.
2. HARD CLOSURE DEFINED AS NO ACCESS WITH EXCEPTION OF EMERGENCY RESOURCES AS NOTED.
3. HARD CLOSURE EXCEPT TO PRIVATE BUSINESS DEFINED AS ACCESS TO SPECIFIC LOCATIONS ONLY AND THROUGH TRAFFIC.
4. EMERGENCY RESPONDERS ALLOWED ACCESS PAST HARD CLOSURES USE EMERGENCY RESPONDER Routes.
5. EXISTING PEDESTRIAN DETOUR SIGNAGE CURRENTLY IN PLACE AT E. UNIVERSITY BLVD AND GENTRY CRIBB OR WHAT SHALL REMAIN IN PLACE FOR 60-DAY INTERSECTION CLOSURE. ALL PEDESTRIAN DETOUR ROUTES MUST BE ADA Appropriate.

UNIVERSITY AND JOSEPHINE PAVEMENT AND DRAINAGE IMPROVEMENT PROJECT
E. 1ST AVE AND UNIVERSITY BLVD INTERSECTION CLOSURE - SOFT & HARD CLOSURE PLAN
DRAFT - For discussion purposes only
September 16, 2014
Sheet 2 of 5
PORTABLE VMS: PRE-CLOSURE MESSAGE BEFORE EVENT

1ST/UNIV FULL CLOSURE SAT 10PM THRU TUES 7AM

PORTABLE VMS: CLOSURE MESSAGE DURING EVENT

1ST/UNIV CLOSED UNTIL TUES 7AM

PORTABLE VMS: BUSINESS MESSAGE DURING EVENT

NO ACCESS TO SPEER ALL BUSINESS OPEN
SOFT CLOSURE

Page 1 - left turn must turn left, and move taper back.

Page 2 - left turn must turn left, and move taper back.

PM means the tactic that ACC will do during project.

Move taper back for visibility = taper may need to be adjusted in length for visibility due to high point on roadway as vehicles approach Alameda.

Add Detour to Alameda signs.
HARD CLOSURE

- Lane for Wholefoods drive to NB Univ for emergency access.
- No traffic through intersection or associated turn movements from 10pm Saturday to 7am Tuesday. For emergency vehicles only.

*Workers shall not access the work areas by crossing roadways (five lanes of traffic) unless a flagger(s) is present to stop traffic or crossing at designated pedestrian cross walks.*

WB HARD CLOSURE

- No access to E 1st Ave.
- Wholefoods access gate NO EXIT.
- Road closed, local traffic only.
- Access to Clayton Lane, Cherry Creek Mall, and Wholefoods only.

240 hard close
PUBLIC GRAPHIC: ALTERNATE ROUTES

University and Josephine Pavement and Drainage Improvement Project
East 1st Avenue and University Boulevard Intersection Closure

Local access maintained to all residences and businesses.

Alternate Routes:
Saturday, September 20th, 10:00pm thru Tuesday, September 23rd, 7:00am

All area businesses open.

Alternate east-west routes:
- E. 10th Ave.
- E. 9th Ave.
- Colfax Ave.
- E. 8th Ave.
- E. 7th Ave.
- E. 6th Ave.

Alternate north-south routes:
- E. Colorado Blvd.
- E. Colorado Blvd.
- E. Colorado Blvd.
- E. Colorado Blvd.

Local access maintained to all residences and businesses.
University and Josephine Pavement and Drainage Improvement Project

East 1st Avenue and University Boulevard Intersection Closure

Local access maintained to all residences and businesses.

Lane Closures
Saturday, September 20th, 10:00pm thru Tuesday, September 23rd, 7:00am

Local access maintained to all residences and businesses.

E. 1st Ave. & University Blvd. Intersection Closure

Construction zone - closed to unauthorized vehicles
Sidewalks open and accessible
Cherry Creek Trail Detour

All area businesses open.
LESSONS LEARNED

- Porous soft closures
  - Two “soft” closures converted to “hard” in order to mitigate queuing
- Prior to event, check and double check all signs
- Include bus detour routes in Operations Plan notebook
- Backup concrete supplier
- Sufficient manpower
- If possible, alter phasing to allow primary direction of traffic to resume sooner
CONCLUSION

- Full closures can be popular with the public if:
  - The perceived pain of full closure is less than that of multiple, partial closures
  - The public sees a net benefit
  - Sufficient public outreach prior
  - Effective signing during
  - Promised goal is met
QUESTIONS?

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