



COLORADO
Department of
Transportation



US 34 East Permanent Flood Repairs

Public Meeting - October 14, 2014



Presentation Agenda

- Opening Remarks
- CDOT Flood Recovery
- Emergency Repairs
- Project Overview
- Schedule
- Traffic Impacts
- Communication & Questions





CDOT Flood Recovery

Initial Flood Impact

- \$535 million estimated damage to facilities
- 486 miles closed
- 27 roads closed
- 120 bridges damaged

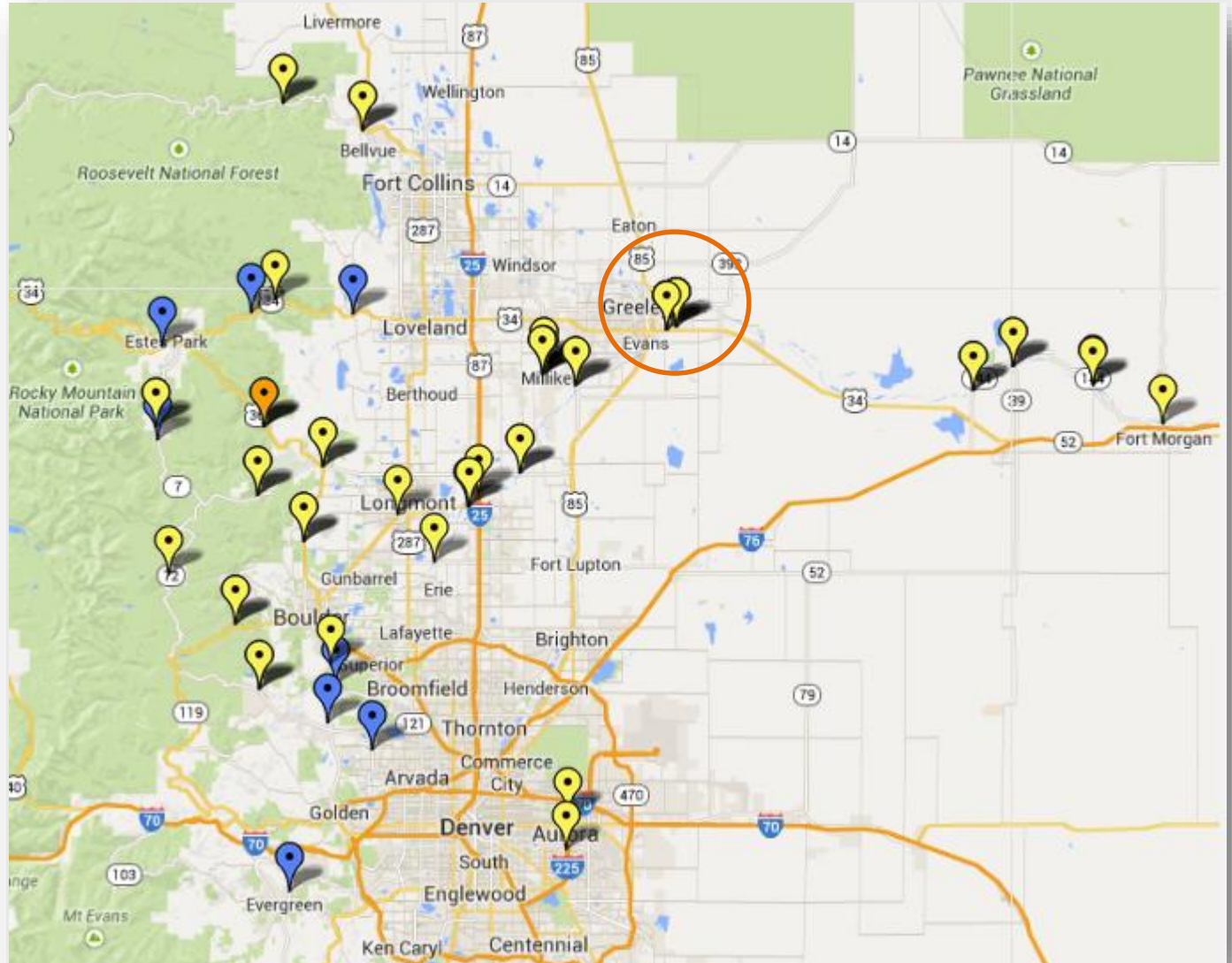


Governor's Challenge #1 “Open by December 1, 2013”

Governor's Challenge #2 “Build back better than before”



CDOT Flood Recovery





September 2013



Photo taken by Colorado Civil Air Patrol

US34 East - Two overtopping locations



September 2013





US 34 East Emergency Repairs

- Temporary road ‘shoofly’ built around damage
 - Mobility restored after 17 days
 - Two lanes vs. four lanes
- Sediment and debris removal
- Embankment restoration and strengthening
- Drainage installation





US 34 East Emergency Repairs





Risk & Resiliency Analysis

- FHWA requires a risk-based analysis for design repairs to ensure that they are cost effective and reduce the potential for future loss
- CDOT & FHWA are piloting a resiliency infrastructure model
 - Understand vulnerabilities
 - Assess threat likelihood
 - Consider probability of failure





FHWA Funding Considerations

- \$450 million for CDOT flood recovery effort
- \$22 million for US 34 East

What permanent repairs are needed to restore the highway in-kind to pre-disaster conditions?

Where can updated CDOT standards be applied?

What resiliencies can be introduced to minimize damage from future events?



US 34 East Project Goals

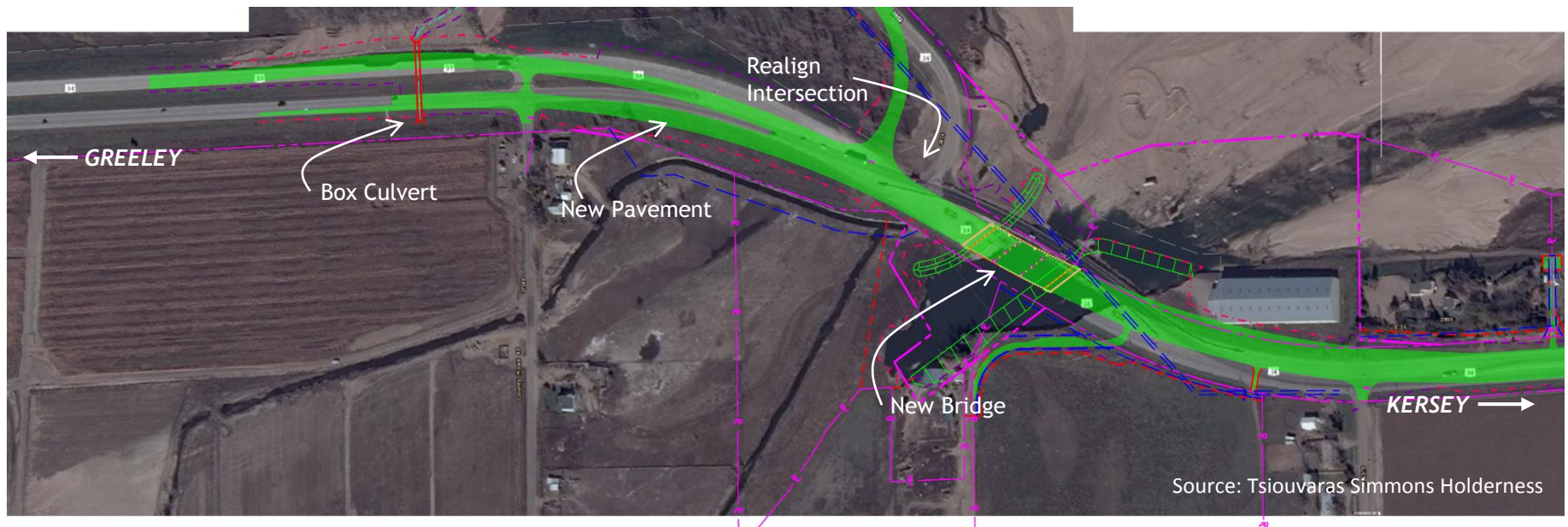
- Provide safe and dependable route for regional and local travel
- Bring highway up to current design standards
- Add resiliency elements that reduce future damage potential
- Restore and reseed scour holes



US 34 Permanent Repairs

Designing for Resiliency

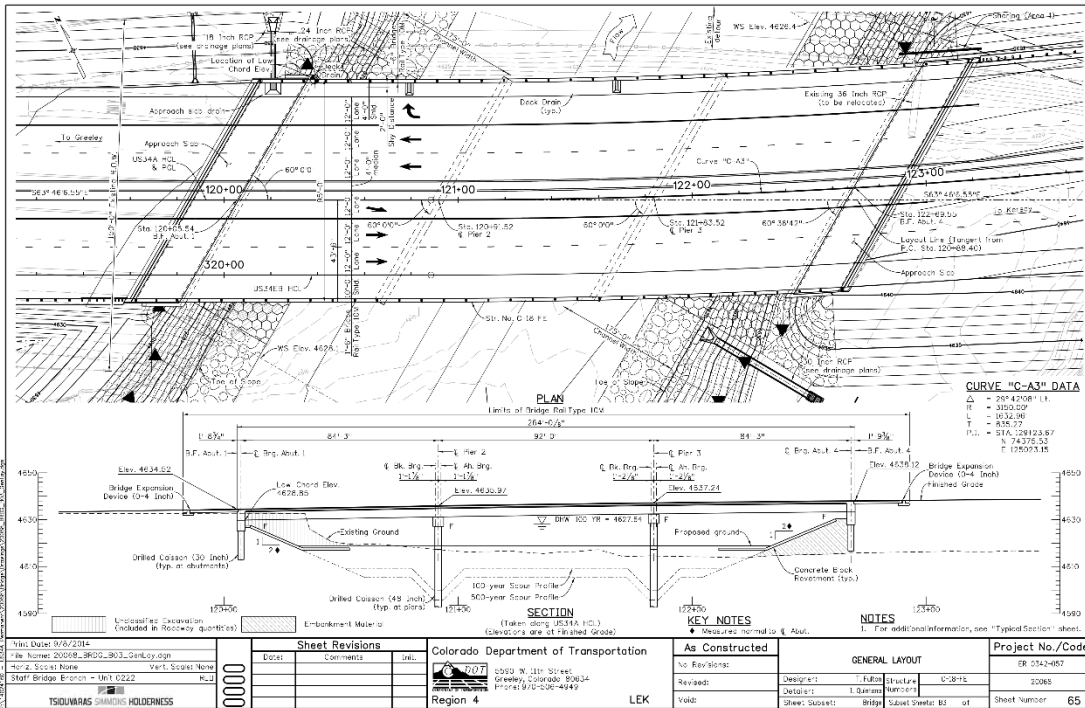
- Selected bridge design accommodates flood event
- Horizontal alignment modifications
- Box culvert provides additional drainage





U34 Permanent Repairs

Designing for Resiliency



PRICING PLAN SET, SEPTEMBER 2014



U34 Permanent Repairs

Project Milestones

FALL 2014

- Construct temporary road pavement
- Start filling scour holes
- Realign traffic to the north for bridge and box culvert construction
- Build permanent new roadway near bridge approaches and on east side of bridge



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Project Milestones

Winter 2014 - 2015

- Construct bridge (west to east)
- Continue filling scour holes
- Install box culvert (south side)
- Complete bridge construction
- *Goal: Traffic on bridge by mid-April 2015*



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Project Milestones

Spring - Summer 2015

- Continue box culvert (north side)
- Realign US 34 Business intersection
- Finish permanent roadway construction on the west side of bridge
- Seed earthen channel (former scour holes)
- *Goal: Complete project in July 2015*



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Early Milestones - 2014



North side drainage and embankment work

OCTOBER

Temporary road pushed north to make room for bridge construction

Maintain two lanes, one lane in each direction; intermittent lane closures might be necessary during off peak hours



Traffic moves to modified temporary road

NOVEMBER

Bridge foundation work begins (west to east)

Permanent road work near bridge site

Maintain two lanes, one lane in each direction



Bridge foundation work continues

DECEMBER

Bridge substructure work begins (west to east)

Temporary fills for bridge access

Box culvert work

Maintain two lanes, one lane in each direction



U34 Permanent Repairs

Stay Informed

- ✓ Website

<http://www.coloradodot.info/projects/floodrelatedprojects/us-34-east>

*Sign up for email alerts online: Click on green cell phone, select
'US 34 Flood Repairs' under Colorado Flooding*

- ✓ Hotline **970-815-0901**
- ✓ Email **US34East@gmail.com**



Source: CDOT