



**COLORADO**  
Department of Transportation  
Region 4

I-25 North: Berthoud to Johnstown  
Segments 5 & 6  
11372 Business Park Circle  
Firestone, CO 80504

**DATE:** December 4, 2019

**TO:** Heather Paddock, P.E., CDOT Region 4 RTD  
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**FROM:** Abra Geissler, P.E., I-25: Mead to Johnstown (Segment 5&6) Project Director  
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**RE:** Northern Colorado Transportation Network Vision: Frontage Road Elimination and IPA Approach

## **S**ituation:

The purpose of this memo is to communicate the recommended approach for developing a safer and more robust Northern Colorado Transportation Network (NCTN) by eliminating long sections of the frontage roads and planning, designing, and strategically constructing the I-25 Parallel Arterial (IPA) from approximately one-mile north of SH 66 to Ronald Reagan Boulevard. This holistic approach prioritizes the safety and need for the NCTN when considering and evaluating multiple factors, such as accident history, operations, access, development, available resources, right of way (ROW), and maintenance.

## **B**ackground:

The front range along Northern Colorado is a rapidly growing region attracting development, new residents, and tourism at an exponential rate. CDOT and local communities are at a pivotal moment to forecast how best to position the NCTN that will encourage safe and efficient traffic flow. While much of the land adjacent to I-25 is currently agriculture, a unique opportunity exists to leverage impending development and partnerships to help drive a new roadway network that will better serve the overall system. This approach reinforces the operational resiliency model that CDOT Region 4 is implementing, as well. Operational resiliency is a proactive way of thinking about roadway networks as it relates to balancing trip reliability and strategic access while accommodating growth and development.

Additionally, I-25 is being widened from SH 56 to SH 14 to accommodate an express lane in each direction and reconstruct interchanges. The North I-25 Final Environmental Impact Statement (FEIS) involved reconstructing a frontage road traversing east adjacent to I-25. During the design process, the I-25 project team evaluated the function, impact, and cost of improving the frontage roads, specifically focusing on what's best for the overall transportation system. This evaluation was a timely endeavor and presented an opportunity to use resources and partnerships to efficiently better the NCTN.



In order to progress the NCTN, two teams are working on this evaluation. The IPA team is responsible for building consensus among a Technical Advisory Committee (TAC) made with members from Berthoud, Johnstown, Larimer County, Loveland, Mead, and Weld County. This consensus involves defining roadway design criteria and corridor characteristics including design speeds, typical roadway templates, drainage standards, right of way needs, and the proposed location of the IPA that could easily be handed to future developers. They are completing a 30% design package and an Access Control Plan (ACP) so ROW lines and utility and environmental impacts are determined. An ACP documents allowable access points onto roadways based on road conditions, traffic volume, alternative routes, existing accesses, etc. The second team working on the frontage road evaluations is the I-25 Mead to Johnstown (Segment 5/6) team. As part of the design process, this team is coordinating with property owners adjacent to I-25, determining how best to minimize ROW impacts, strategizing current and future regional transportation flows and networks, ensuring access is maintained, and evaluating how best to use project resources for the NCTN while also minimizing future waste.

## **A**ssessment:

The project teams have evaluated and documented the below issues and reasons for assessing the vitality of removing the frontage roads and progressing the IPA option.

### **Safety and Operations**

Multiple safety and operational issues exist when the frontage road is closely adjacent (approximately 30'-50') to I-25 mainline. Some of these issues are:

- *Vehicle/Headlight Confusion.* The close proximity between the frontage road and I-25 sometimes makes it confusing to tell what cars are traveling on what road (especially at night), creating dangerous cross vehicle conflict points. *Figure 1*, shown below, was taken at night looking south near the I-25/SH 119 interchange where the frontage road is approximately 35' from I-25 mainline. The picture shows one car traveling on the frontage road that blends in with I-25 mainline cars; this picture portrays the confusion drivers may experience when determining what cars are traveling northbound on I-25 and northbound on the frontage road.



*Figure 1. SH 119 and I-25 looking south*



- *Clear Zone.* The I-25 speed limit between SH 66 and US 34 is 75 mph with a minimum clear zone of 30' from edge of travel way. For much of the corridor, the frontage roads are within or close to the clear zone of I-25 mainline, creating dangerous head-to-head conditions if cars were to leave the traveled way and inadvertently travel into oncoming traffic. A barrier could be constructed to separate traffic, but this would cause an additional hazard within the clear zone and create a maintenance burden that does not exist today.
- *Existing Unconventional Interchange Layouts.* The current alignment of the frontage road is problematic from a safety and operational point due to the minimal distance between interstate on and off ramps and the frontage road intersection, as shown in *Figure 2* below. The close proximity of the intersections causes driver confusion, especially drivers who want to turn right on red coming from the off-ramp and are in direct conflict of north/south movements from the frontage road. The operational functionality of the interchange also suffers due to the multiple traffic signal phases that exist to account for the frontage road movements. The IPA will be separated from the interchange ramps by a practical minimum of 800-1000 feet so vertical grades tie back into the surrounding terrain for a more standard intersection; additionally, the intersections will function independently, which increases safety and flow through both intersections.



*Figure 2. Current Condition of SH 60 Interchange*

- *Development Access and Appropriate Jurisdictional Governance.* With an increase of development occurring, developers are requesting to gain access from the frontage roads. The frontage road's purpose does not facilitate full-turn movements, so typically the most



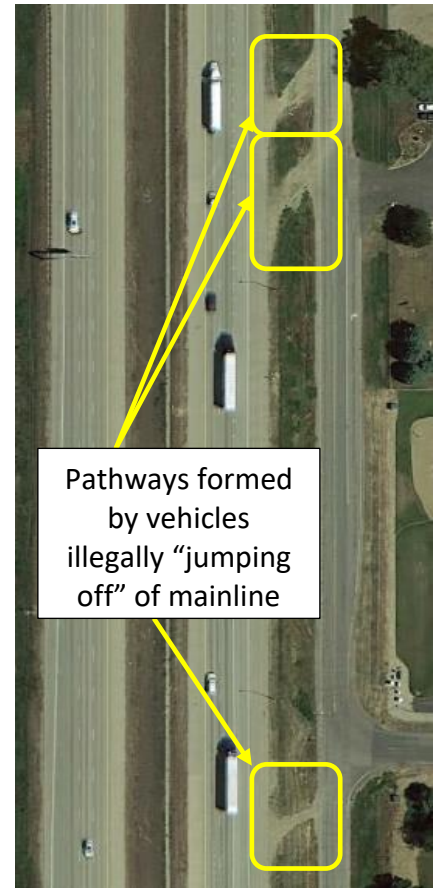
appropriate movement that CDOT can grant is a right in/right out movement, which is not popular among developers. Right in/right out movements into major developments do not facilitate a safe, redundant, or operationally resilient roadway network. With the IPA and ACP, CDOT is removed from the process and the local agencies can work within their jurisdictional boundaries to apply their growth vision and plans with the developers and determine the most appropriate access and movements.

- *Illegal Movements.* When congestion exists on mainline traffic, some vehicles illegally “jump off” mainline to use the uncongested frontage road. This movement creates additional conflict points that are unsafe and burdens law enforcement when they are likely busy dealing with the cause of the congestion. *Figure 3*, shown below, highlights three different path marks in an approximate 775’ section created from vehicles unsafely exiting mainline and illegally entering the frontage road.

### ROW

Multiple ROW considerations exist when assessing the NCTN approach; they are:

- *IPA Preservation.* This area is currently mostly agriculture but there is a high interest by development, some likely occurring in the near future. This change in land use presents a unique opportunity to proactively design the IPA and plan for ROW dedication and utility placement as development occurs that will also have minimal impacts to existing infrastructure.
- *Mainline Preservation.* The I-25 project involves preserving an approximate 184’ wide template for the ultimate configuration. If the frontage roads were constructed it would be an additional 84’-wide impact (40’ separation between the frontage road and mainline and 44’ wide frontage road) for a length of about 14 miles, equaling an additional 143-acre impact to adjacent property owners. The I-25 project team has refined the alignment so the existing frontage road ROW will be utilized to build the ultimate I-25 mainline configuration, greatly reducing the ROW impact to property owners located directly east of I-25.
- *Frontage Road “Bulb Outs” Impacts.* Roadway design criteria mandates that accesses be located a minimum of 660’ apart from each other. For this reason, the frontage road intersection has a wide “swing out” to adhere to this standard, shown in *Figure 4* below. This causes great ROW impacts at the interchanges, which is highly lucrative property for development and expensive real estate. The I-25 project team has met with four developers that have conceptual plans that show the bulb out layouts negatively impact each of their site developments. Both teams have had preliminary conversations with the developers where they are very much in favor of incorporating the IPA alignment into their conceptual plans and plat.



*Figure 3. Pathways created from illegal movements*



## Resource Management

With limited state transportation funding for construction and maintenance, CDOT is constantly evaluating how to prioritize budgets to get the best benefit/cost ratio out of available resources. This is especially true with frontage roads, as these roads do not count towards the lane-mileage summation that determines the amount of funding given to each region. For this reason, CDOT is reactively responding to frontage road repairs, rather than proactively paying for frontage road maintenance.

The project funding that currently exists in the I-25 Segment 6 (SH 56 to SH 402) project does not support the entire scope of what was identified to be built in the FEIS. The I-25 project team is evaluating multiple options that will most effectively use project funds to increase safety and operations, as well as reduce future waste. The frontage road widening, and specifically the bulb out infrastructure near the interchanges, is a large cost. By eliminating the frontage roads from the project scope, the project team is able to prioritize improving mainline I-25 funds where the safety and operational benefits are realized most.

Additionally, if the frontage roads do remain in place and development occurs, they will likely want to maximize developable area by reconfiguring the frontage road and bulb out configuration. Therefore, there is a high chance that infrastructure constructed as part of the I-25 project would be torn out, causing money spent on improving the frontage roads to be waste.

The I-25 and IPA project teams met with FHWA on August 27, 2019 to present the IPA vision, overall approach for closing the frontage roads, and establish coordinating efforts with local agencies, emergency services, schools, and utility providers. FHWA was in consensus that the vision and approach that was presented would be an overall benefit for the NCTN.

The timing of the frontage road removal will be directly correlated to the I-25 project construction. As construction on mainline I-25 occurs, frontage roads adjacent to the work will be shut down. The first section of closure, located between SH 56 and WCR 46, will occur in January 2020. It should be noted that the frontage road located between LCR 14 and SH 402 will remain in place due to the high volume of business and residential accesses.

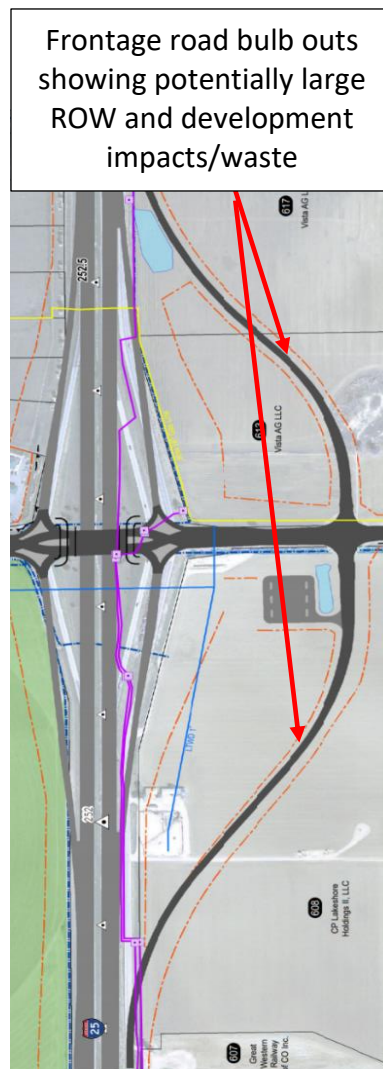


Figure 4. Frontage Road Bulb Out Impacts

## Recommendation:

Based on the feedback CDOT has received from FHWA, local agencies (Berthoud, Johnstown, Larimer County, Loveland, Mead, and Weld County), adjacent property owners, and developers, the general consensus is that eliminating the frontage roads and installing the IPA is a benefit when looked at from multiple perspectives because of the items discussed above in the “Assessment” section. The recommendation is to:

- Progress IPA design to a roughly 30% package for the 14-mile stretch between SH 66 to US 34, making sure to define ROW preservation, utility corridors, and future build-out conditions.
- Continue to work with local agencies to define the technical criteria and corridor characteristics. The typical section is shown below in Figure 5.

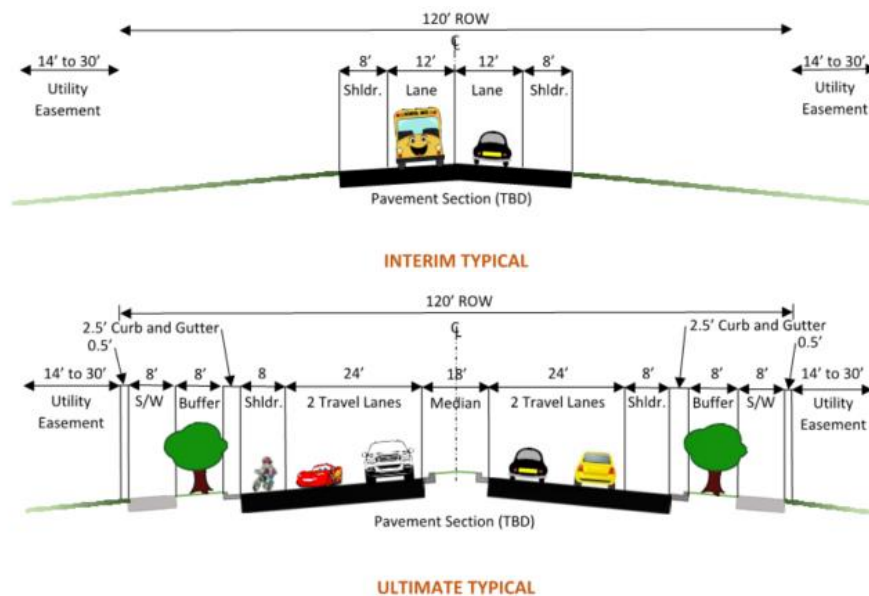


Figure 5. IPA typical section as identified and agreed by the IPA TAC

- Draft an ACP for the IPA corridor for the TAC agencies to adopt.
- Message to stakeholders and residents the shortest and most efficient routes, when considering road surface and speed limit, for post I-25 widening project conditions, as well as the scenario when sections of the IPA are constructed. A conceptual IPA plan with estimated construction timing is attached.
- Maintain access to every property that currently has access and document any changes to driving conditions, such as roadway surface (asphalt, gravel, dirt), width, maintenance, etc. that will exist between current and post-I-25 construction condition, as well as current and the future IPA alignment.
- Work with emergency services, utility companies, school districts, Great Western Railway, and property owners to identify reasonable routes that will maintain access without having



to rely on the frontage road when considering post-I-25 construction condition and the future IPA alignment.

- Execute memoranda of agreement and/or intergovernmental agreements that will document the means, methods, payments, responsibilities, and timing to implement this approach. These agreements will also help local agencies incorporate the IPA into their respective Master Transportation Planning documents.

Considering the assessments presented and the recommendations outlined within this memo, the I-25 and IPA teams believe this is a reasonable and necessary vision and approach to better the NCTN.

**Attachments:**

- Estimated Construction of IPA
- Access graphic

CC: Stephanie Gibson, FHWA  
Brian Dobling, P.E., FHWA  
Keith Sheaffer, South Program Engineer



# Estimated IPA Construction Timing

CONCEPTUAL DESIGN

