

## SUMMARY

# East 13<sup>th</sup>, 14<sup>th</sup>, 16<sup>th</sup> & 17<sup>th</sup> Avenues Safety Study

December, 2024

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## PROJECT OVERVIEW

This safety study aims to identify long-term safety improvements for all travel modes on East 13<sup>th</sup>, 14<sup>th</sup>, 16<sup>th</sup>, and 17<sup>th</sup> Avenues between Broadway and the eastern Denver city limits. The study area includes:

- East 13<sup>th</sup> Avenue from Broadway to Yosemite Street
- East 14<sup>th</sup> Avenue from Broadway to Yosemite Street
- East 16<sup>th</sup> Avenue from Detroit Street to Colorado Boulevard
- East 17<sup>th</sup> Avenue from Colorado Boulevard to Yosemite Street

These streets have been a long-standing concern for area residents, business owners, and other constituents. Portions of these streets have been identified on the city's High Injury Network in the *2022 Vision Zero Action Plan*. Additionally, forthcoming Bus Rapid Transit (BRT) on East Colfax Avenue is expected to change travel patterns in the area. This study aims to identify mitigations for both pre-existing safety concerns on these streets as well as for potential diversion effects resulting from East Colfax Avenue BRT.

This study was comprised of an analysis of existing conditions, recommendation of countermeasures to improve safety, and a benefit-cost analysis of each recommendation.

## SAFETY SUMMARY

Safety concerns were assessed by way of crash history, speed and volume data, and community member input. The number of crashes occurring on these corridors is generally higher than expected. This is partially attributable to high speeds, which are consistent throughout the study area. Hundreds of comments from community members on a web map, a survey, and at public meetings reinforced the data findings with clear concerns of speeding and frequent crashes.

Between 2018 and 2022, there were 2,383 total crashes in the study area, 537 crashes that resulted in a fatality or injury, and 86 crashes involving a pedestrian or bicyclist. This data supports the neighborhoods elevated concerns regarding the safety of the corridor. The crash types that resulted in the most fatal and injury crashes were broadside (front to side), rear-end, fixed object, pedestrian, and overtaking turn (involving a passing vehicle and a turning vehicle). The degree of severity of a crash is often influenced by the difference in speed between the people or objects involved and the vulnerability of each individual. For example, bicyclists and pedestrians are more vulnerable and more likely to be severely injured than someone in a car. Speeding increases the frequency and severity of crashes and diminishes corridor accessibility. On these corridors, between 31% and 88% of vehicles are exceeding the posted speed limit. Several vehicles were observed going 60 MPH or more – more than double the posted speed limit.

## PRIMARY SAFETY CONCERNS & COUNTERMEASURES

The primary safety concerns observed in this study are listed in the table below. They are paired with proven countermeasures that are recommended at various locations throughout the study area. High speeds, although not directly attributable to any one crash type, have the effect of exacerbating the likelihood and severity of all crash types. The other five concerns collectively represent 66% of fatal and injury crashes in the study area during 2018-2022. By focusing on this limited number of safety concerns, the city can have an outsized impact in reducing severe crashes.

Near-term countermeasures are those that can be implemented with quick-build materials and that already meet DOTI standards or have otherwise recently been designed/implemented elsewhere in Denver. Additional countermeasures are those that have been shown to reduce crashes but are either non-standard in Denver or require technology upgrades that could be costly or require citywide prioritization for implementation.

Safety Concern	Near-term Countermeasures	Additional Countermeasures
<b>High speeds</b>	<ul style="list-style-type: none"> <li>Coordinate signals at slower speed</li> <li>Install <a href="#">curb extensions</a> to reduce turning radius</li> <li>Install <a href="#">chicanes</a> to meander lanes</li> </ul>	<ul style="list-style-type: none"> <li>Install speed tables</li> <li>Convert one-way streets to two-way</li> </ul>
<b>Broadside crashes at signalized intersections</b>	<ul style="list-style-type: none"> <li>Increase all-red time to clear intersection</li> </ul>	<ul style="list-style-type: none"> <li>Increase all-red time automatically based on vehicle detection</li> <li>Install red light cameras</li> </ul>
<b>Broadside crashes at unsignalized intersections</b>	<ul style="list-style-type: none"> <li>Increase sight distance</li> </ul>	N/A
<b>Crashes involving pedestrians and bicyclists</b>	<ul style="list-style-type: none"> <li>Allow pedestrians to start crossing before vehicles (Leading Pedestrian Interval)</li> <li>Install <a href="#">curb extensions</a> to reduce crossing distance</li> </ul>	N/A
<b>Overtaking turn crashes</b>	<ul style="list-style-type: none"> <li>Add painted arrows in turning lanes</li> </ul>	<ul style="list-style-type: none"> <li>Convert one-way streets to two-way</li> </ul>
<b>Wrong way crashes</b>	<ul style="list-style-type: none"> <li>Improve one-way signage</li> </ul>	<ul style="list-style-type: none"> <li>Convert one-way streets to two-way</li> </ul>
<b>Other</b>	N/A	<ul style="list-style-type: none"> <li>Relocate mid-block signals</li> <li>Reduce number of lanes</li> <li>Convert one-way streets to two-way</li> <li>Install protected bike lanes</li> </ul>

Source: Fehr & Peers

The city is working to identify funding for near-term and additional countermeasures. The city will implement countermeasures as funding becomes available and expects to have some countermeasures installed between 2024 and 2027, the timeline of construction for East Colfax Avenue BRT.