



MEMORANDUM

TO:	Region 3 Project Engineer
FROM:	Trenton Prall, City of Grand Junction Public Works Director Scott Mai, Mesa County Public Works Director
DATE:	May 22, 2024
SUBJECT:	29 Road Interchange at I-70, NEPA/1601 Project <i>TDM Memorandum #1 – Identify Existing Conditions</i> <i>TDM Memorandum #2 – Potential TDM Strategies</i>

TDM Memorandum #1

Background

The City of Grand Junction and Mesa County (project sponsors) are jointly advancing the 29 Road Interchange at I-70, NEPA/1601 Project (the “Project” or the “Interchange”). The Interchange, per the 1601.0 Policy Directive, is a Type 1 interchange within the Grand Valley Regional Transportation Planning Office, which is home to the Grand Valley Regional Transportation Planning Organization (RTPO). The project sponsors are working collaboratively with the Colorado Department of Transportation (CDOT) and the Federal Highway Administration (FHWA) to complete the 1601 System Level Study (SLS) and Interchange Access Request (IAR) for the new interchange. Proposed improvements include:

- ▶ Construction of a new interchange at 29 Road and I-70 (between the current I-70B/Clifton and Horizon Drive Interchanges);
- ▶ Extension of 29 Road north from G Road to and beyond the new interchange (including a new structure over the Government Highline Canal);

- ▶ Improvements along the existing 29 Road between the Government Highline Canal and Patterson Road;
- ▶ Maintaining connectivity between 29 Road and the existing North I-70 Frontage Road, and
- ▶ Implementation of a travel demand management (TDM) plan.

This memo presents the information requested for TDM Memo #1 and Memo #2 as defined in CDOT’s 1601 TDM Plan, last updated in October 2023.

TDM Trip Reduction Requirements

The anticipated average daily trip reduction requirements for the Interchange are based on the forecasted volumes developed through project development included in the SLS. The project area is located in the Grand Valley MPO, thus per the *1601.1 Procedural Directive*, this project area is considered an Urban project, despite the fact the vast majority of the undeveloped area to the north of the proposed Interchange are unavailable for development due to its proximity to the Grand Junction Airport and Bureau of Land Management (BLM) lands. Forecasted ramp volumes and required trip reduction requirements per the *1601.1 Procedural Directive* are summarized in **Table 1**.

**Table 1. 29 Road Interchange at I-70 Forecasted Ramp
 Volumes & TDM Trip Reduction Requirements**

Forecasted 2030 (Opening Day) Ramp Volumes	7,660 total ADT
Forecasted 2030 (Opening Day) Truck Traffic	305 truck trips
3 Percent Trip Reduction Requirement (Passenger Vehicles)	221 trips

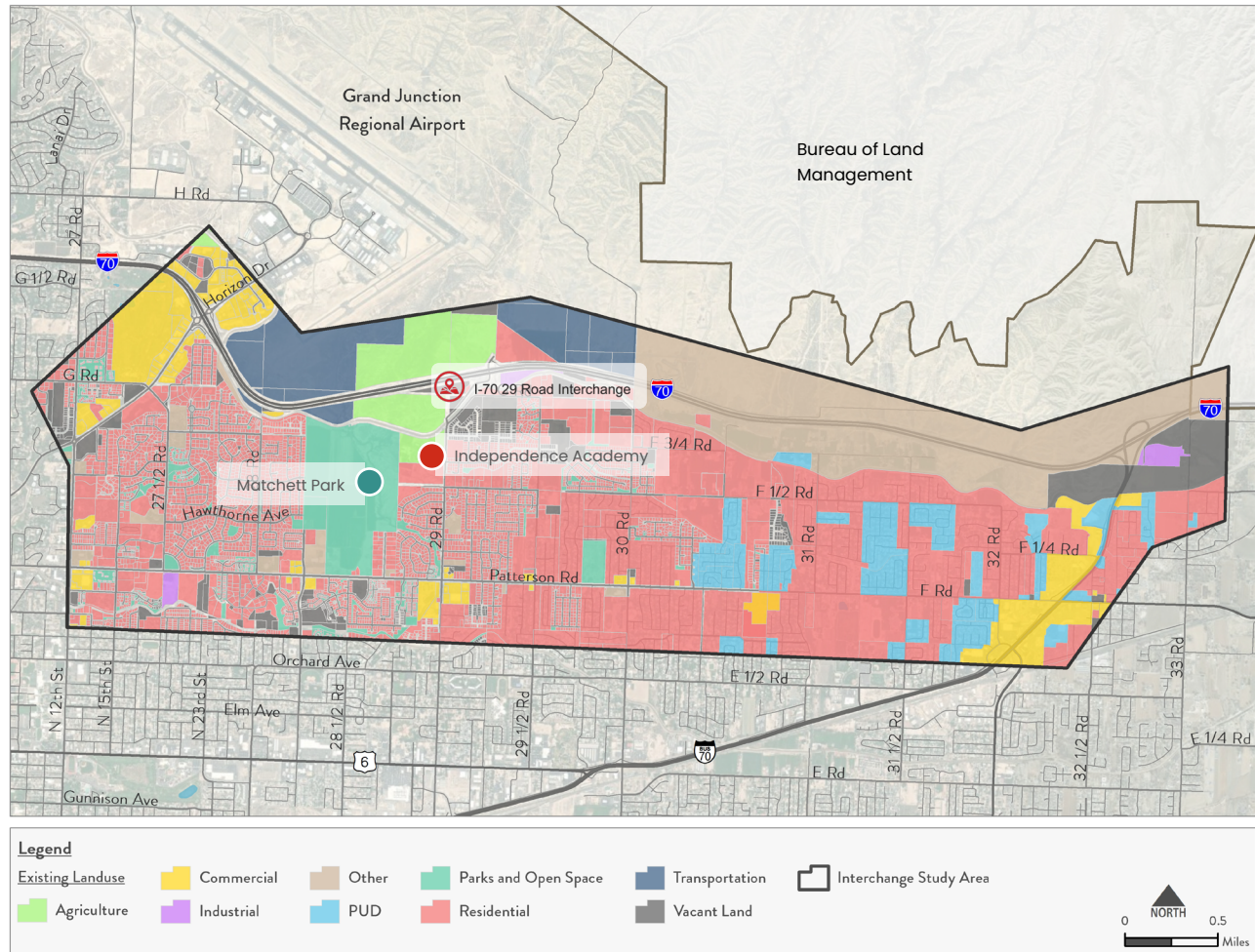
Existing Land Use

The proposed Interchange is located on the edge of the developed portion of Grand Junction. To the south of I-70, land uses are typically suburban single family residential developments between Horizon Drive and I-70B. A few unsubdivided agricultural parcels remain along the Government Highline Canal. There is some commercial development along I-70B to the east of the project area and Patterson Road to the south. The Independence Academy (a K-8 charter school) is located along 29 Road just southwest of

the proposed interchange area. There is some undeveloped land along Indian Wash and a large contiguous area of agricultural land between 28¹/₄ Road and 28³/₄ Road. The agricultural land and portions of the undeveloped areas along Indian Wash are planned to be developed into a new regional park – Matchett Park – that includes a new Community Recreation Center currently under development. A Grand Junction Power electrical substation and solar farm is located between I-70 and the Government Highline Canal to the east of 29 Road, and several high voltage transmission lines connect to this facility.

The areas to the north of I-70 are currently dominated by the Grand Junction Regional Airport (including adjacent commercial development) and Mount Garfield. Outside of these areas, most of the area consists of undeveloped BLM lands, with a few agricultural parcels and the Grand Junction Motor Speedway located near I-70. See **Figure 1** for an existing land use map around the proposed interchange location at 29 Road and I-70.

Figure 1. Existing Land Use



Future Land Use

The City of Grand Junction's current Comprehensive Plan, *2020 One Grand Junction*¹, identifies future land use across the city, as shown in **Figure 2**. This land use is included as the basis of the travel demand model as well, which forecasts travel demand by land use types. The Interchange has limited opportunity for development in the area surrounding the proposed interchange location. Future land use considerations around the Interchange include:

- ▶ Additional residential infill development south of I-70 between 29 Road and 32 Road;

¹ <https://www.gjcity.org/DocumentCenter/View/2527/Grand-Junction-Comprehensive-Plan-PDF>

- ▶ Minor employment increase from the build out of the Matchett Park area between Patterson Road and I-70 (north-south) and between 28¼ Road and Indian Wash / 28¾ Road (east-west);
- ▶ Development of commercial land uses between the airport and the Government Highline Canal (north-south) and between 28½ Road and 29½ Road (east-west), with access from the proposed interchange, and;
- ▶ Development of commercial land uses to the north of I-70 and to the east of the airport runway protection zone, in the vicinity of the existing Grand Junction Motor Speedway, with access from a planned 30 Road extension across I-70 to 29 65/100 Road.

Figure 2. Future Land Use

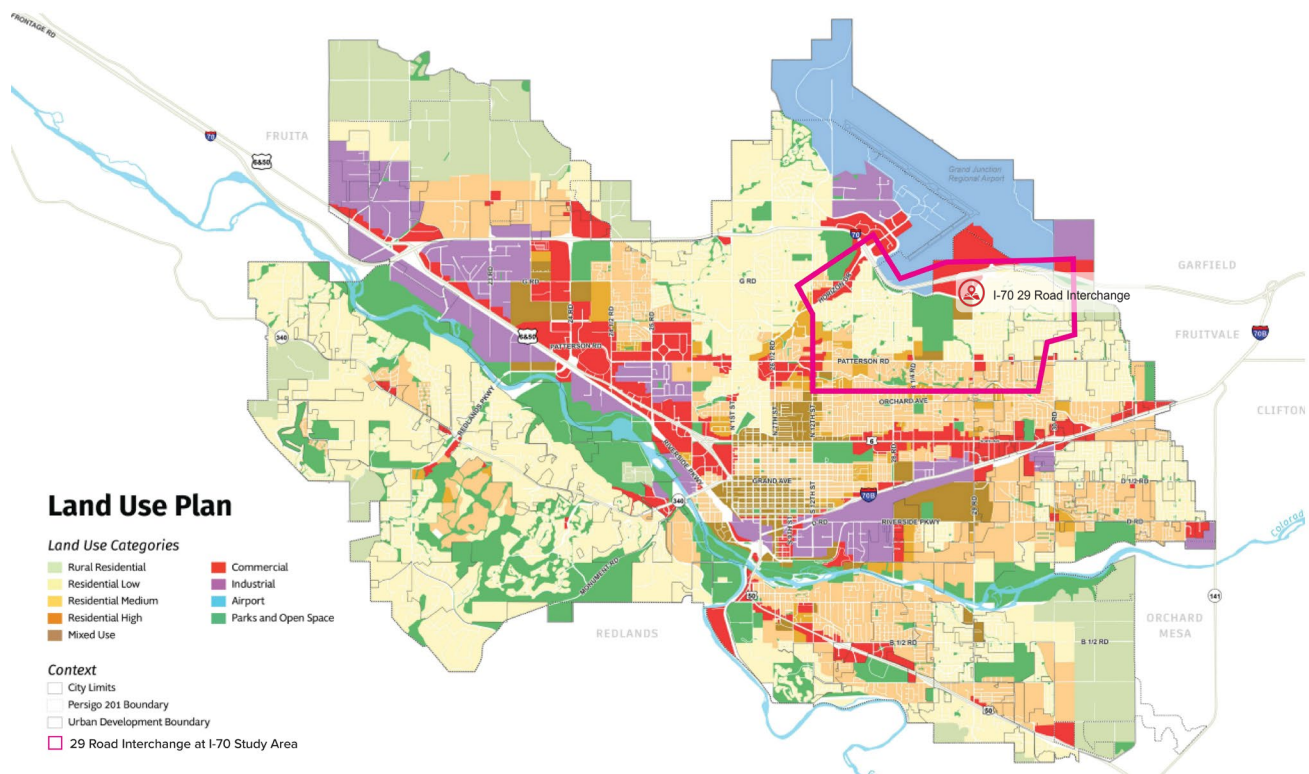
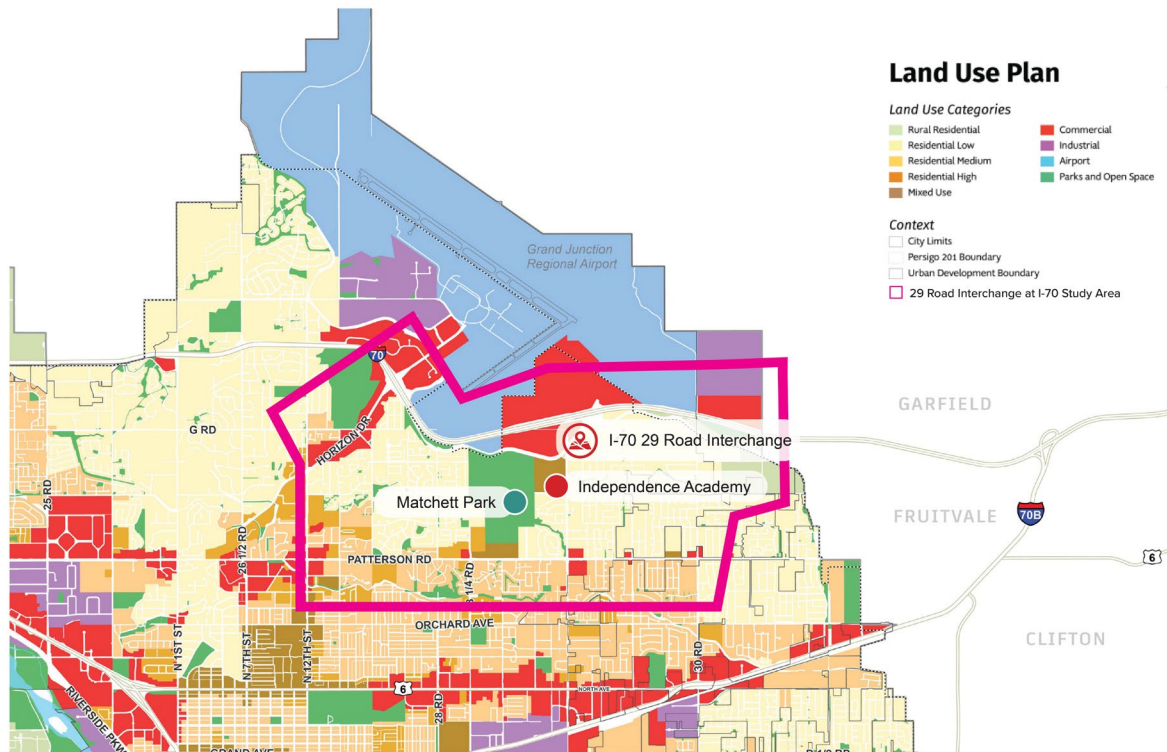


Figure 3. 29 Road Interchange at I-70 Future Land Use



As noted above, residential infill development is ongoing, including new subdivisions along Arabesque Drive and Brodick Way east of 29 Road and north of F½ Road. These land use changes are captured in the travel demand model through increases in households and employment across transportation analysis zones (TAZs), shown in **Figure 4**. As shown in **Table 2**, anticipated employment and household growth between 2018 and 2045 is limited with a projected increase of 327 new jobs and 608 households by 2045. The RTPo is currently updating the Travel Demand Model; if model outputs in the 29 Road interchange area at I-70 are substantially different than reported here (not anticipated due to land use constraints), the project team will update data as needed.

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Figure 4. Transportation Analysis Zones

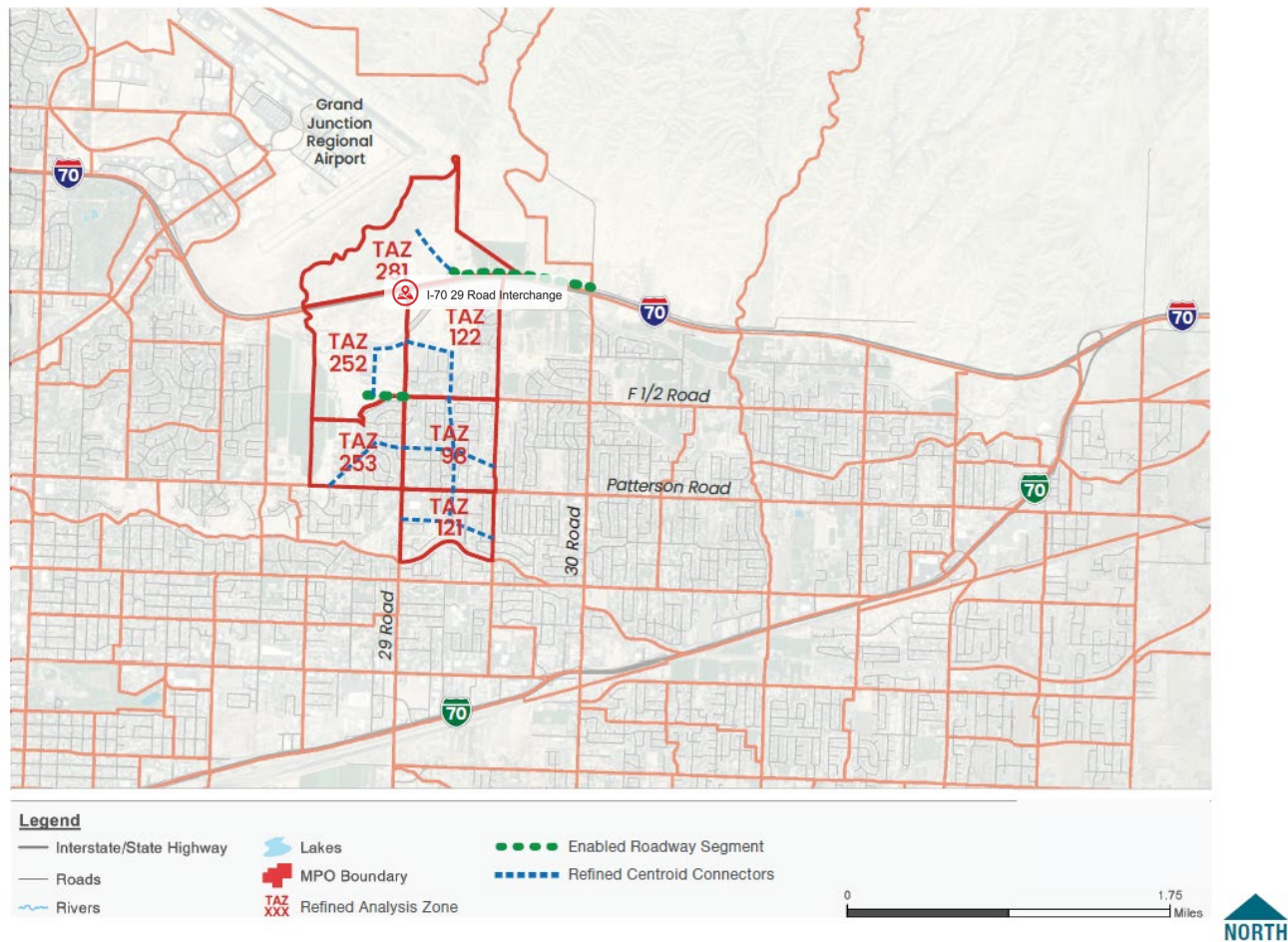


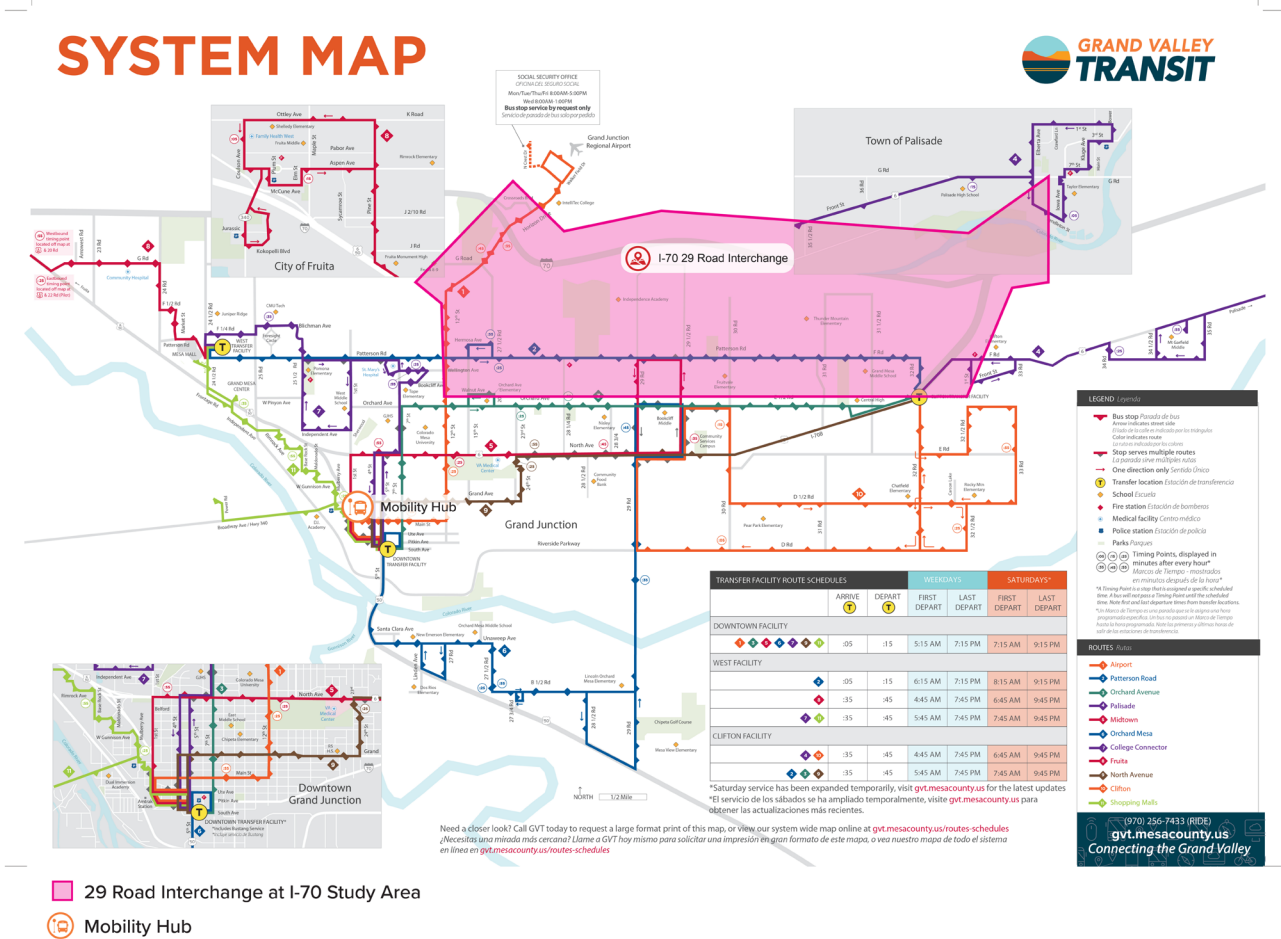
Table 2. Study Area Land Use Growth Forecasts

TAZ	Employment			Households		
	2018	2045	Increase	2018	2045	Increase
98	171	179	8	401	460	59
253	13	13	0	230	243	13
252	0	123	123	3	94	91
122	25	35	10	209	604	395
281	0	145	145	1	0	-1
121	63	104	41	301	352	51
Total	272	599	327	1145	1753	608

Current TDM Strategies Serving the Area

Given the limited development and low-density housing around the proposed Interchange, there are few TDM strategies serving the area today. Today, the interchange area is not served by transit and there is very limited bicycle and pedestrian infrastructure. **Figure 5** shows the current Grand Valley Transit (GVT) system map. Currently, routes for the intercity bus providers and the Bustang Family of Services stop at the Grand Junction Regional Airport and at the Grand Valley Transit Downtown Transfer Facility in downtown Grand Junction before traveling the hypotenuse to I-70 or continuing south on Highway 50.

Figure 5. Grand Valley Transit System Map



TDM/Transit Plan Recommendations

The 2020 *One Grand Junction's Plan* includes Principle 6 that focuses on *Efficient & Connected Transportation*. The Plan strategies are in direct alignment with the TDM priorities within the 1601 Policy Directive and align with the State's greenhouse gas emissions reduction goals. Plan Principle 6 strategies include:

1. Continue to develop a safe, balanced, and well-connected transportation system that enhances mobility for all modes.
2. Actively manage transportation systems and infrastructure to improve reliability, efficiency, and safety.
3. Facilitate the movement of people, goods, and services throughout the region via truck, air, and rail.
4. Encourage the use of transit, bicycling, walking, and other forms of transportation.
5. Anticipate and plan for the implications and opportunities associated with connected vehicles, autonomous vehicles (AVs), drones, mobility-as-a-service, and electric vehicles (EVs).

Currently, transportation planning documents developed by the RTPPO (e.g., 2050 Regional Transportation Plan and the GVT Strategic Plan) do not identify any near-term or long-term strategies to implement transit service on 29 Road north of Patterson Road. The low-density land use patterns to the north of Patterson Road and to the north of 29 Road would likely result in limited demand and low transit ridership.

The *Grand Junction Pedestrian & Bicycle Plan*, completed in April 2023, identifies existing and planned active transportation corridors (ATCs) throughout the City. With the proximity of the future Matchett Park and the existing canal system, there are several ATCs planned in the project study area.

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Figure 6 illustrates existing and recommended bicycle facilities in Grand Junction. Near the Interchange, the plan recommends trail facilities along the canal and connecting to/from the future Matchett Park, a cycle track, trail, or protected bike lane on 29 Road, and the existing striped bike lane on Patterson Road, to be converted to a cycle track, trail, or protected bike lane due to high speeds and high volumes of vehicular traffic.

Figure 6. Existing & Recommended Bicycle Network by Facility Type

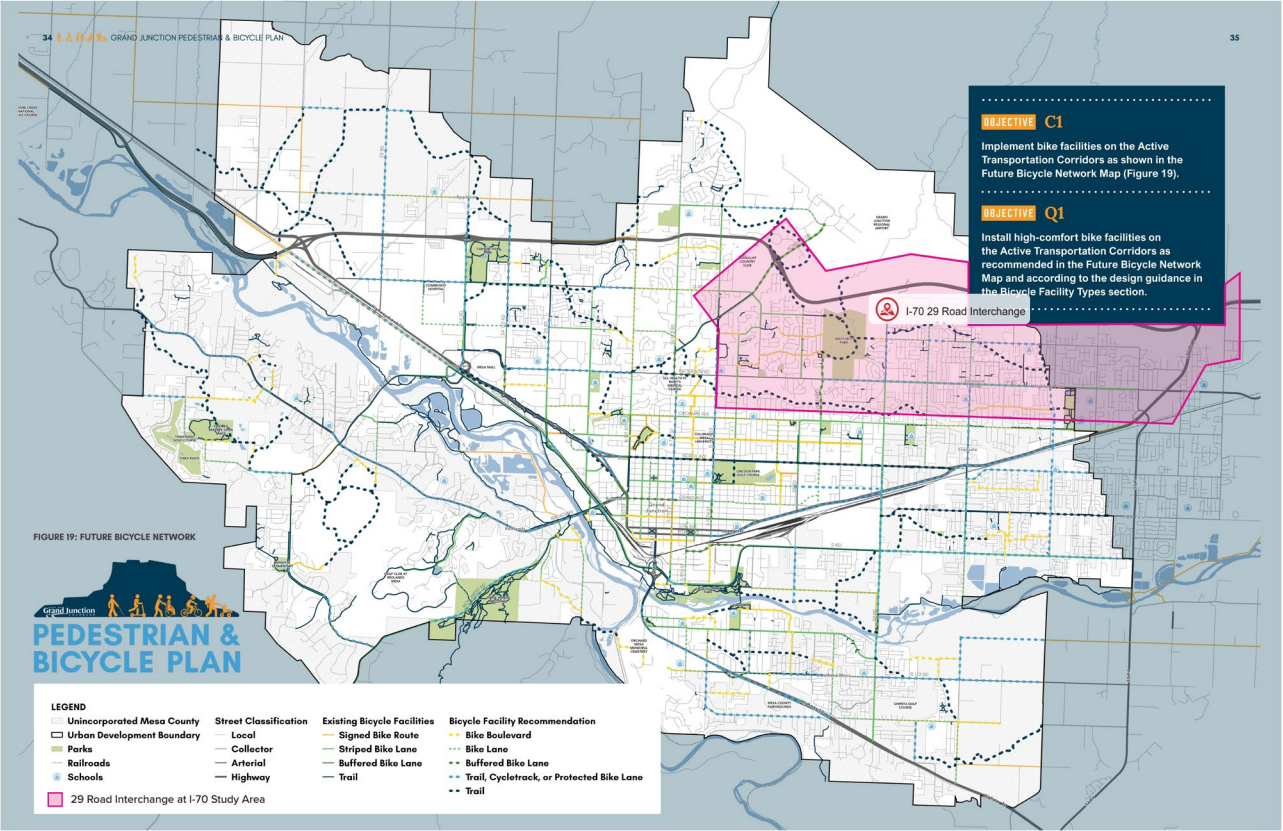
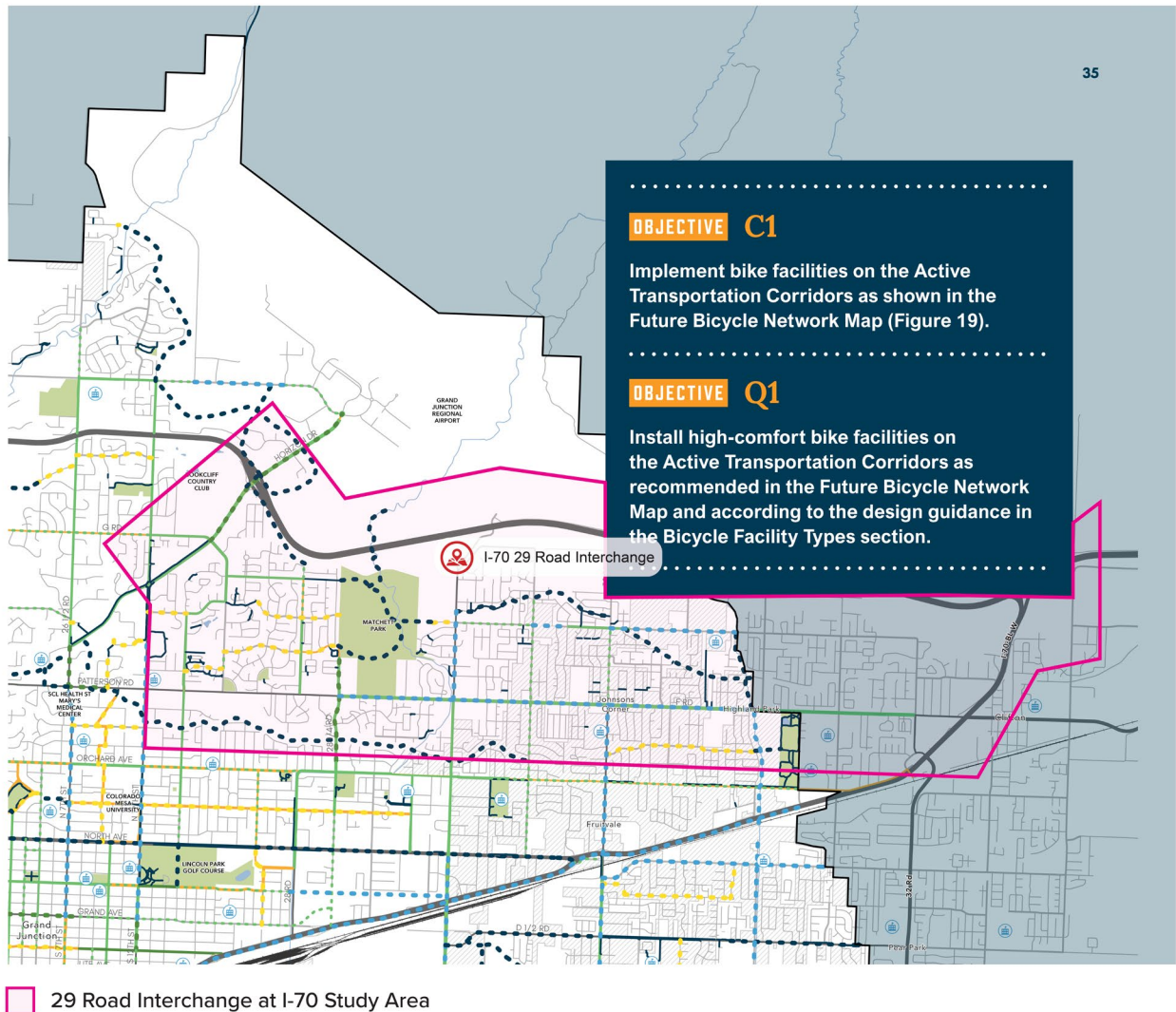


Figure 7: Study Area Existing and Recommended Bicycle Network by Facility Type



TDM Memorandum #2

TDM Trip Reduction Strategies

The following section describes initial TDM recommendations developed by the project team, the City of Grand Junction, Mesa County, the RTPo, CDOT Region 3 technical experts, and CDOT Headquarters staff.

Trip Reduction Goals

Primary trips associated with the Interchange result from new access directly to 29 Road from I-70. As previously discussed and shown in **Table 1**, forecasted opening day average ramp volumes in 2030 is 7,660 ADT. With a trip reduction requirement of 3 percent for a new Type 1 interchange, this equates to reducing interchange ramp trips by 221 passenger vehicle trips per day.

Potential TDM Strategies

Potential TDM strategies for the Interchange aim to reduce trips and promote the use of alternative modes. The intent is to provide strategies that are realistic while understanding that adaptation may be required over time to yield the best trip reduction results.

Mobility Hub / Park-and-Ride

The area to the north of the Interchange is poised to serve as a Mobility Hub location that could serve multiple purposes, such as:

- ▶ Serving as a park-and-ride to support carpooling and shared trips
- ▶ Connecting bicycle and pedestrian facilities
- ▶ Providing bicycle parking facilities and bike maintenance kiosks

This micromobility hub would not include regularly schedule local transit service but would include other modes of transportation. Given that the goal of intercity and inter-regional bus service is to provide speed and reliability for passengers with easy access to City Center and intermodal/interagency transfers, it is not recommended to include a

Bustang stop at the Interchange as the service currently stops at the nearby Grand Junction Regional Airport.

However, there is a great opportunity to reduce Vehicle Miles Traveled (VMT) with the construction of a Park-and-Ride at the interchange. There are currently two Park-and-Ride areas about a mile south of I-70 at Exit 37 (Clifton) that are very well used to support carpooling for longer trips. These Park-and-Rides have approximately 100 spaces and are frequently full. Given the location of 29 Rd Interchange, it is likely that travelers going both east (i.e., Garfield, Pitkin, and Eagle County) and West (i.e., Moab, UT) would use the new Park-and-Ride at the 29 Road Interchange. Assuming the mobility hub has 100 spaces and a modest 50 percent utilization factor of the parking spaces daily, 50 round trips could be reduced per day assuming two occupants. If occupancy of vehicles is higher, trip reduction would increase incrementally

Anticipated ADT Trip Reduction:

This strategy is anticipated to reduce trips by **100 trips (1.4 percent)** based on use of carpooling and use of the Park-n-Ride.

Bicycle & Pedestrian Facilities

Given the bicycle and pedestrian facility recommendations in *Grand Junction’s 2023 Bicycle & Pedestrian Plan*, there is an opportunity to expand the current and proposed infrastructure to expand the active transportation in and around the Interchange. All elements of the Interchange project, including the roundabouts at the interchange, are being designed to include shared-use paths and/or on-street bicycle facilities to improve comfort and attractiveness of using active transportation modes. In fact, the existing 29 Road north of the Government Canal and the existing 29 Road bridge over I-70 will be retained for active transportation modes only. Providing a separate facility improves user comfort, increases access via alternative modes, and improves safety as users are separated from the interchange and associated traffic. Additionally, the design is informed by the larger bicycle transportation network that provides access to recreational facilities such as the future Matchett Park and existing regional bike routes that connect to major activity centers (e.g., Downtown) and recreational areas across the City.

To inform potential trip reduction from new bicycle and pedestrian facilities in and near the Interchange, the team considered not only human powered transportation (e.g., walking, and bicycling), but also electric bicycles and scooters. While the RTPD travel demand model is not built to analyze transit or active transportation trips, behavioral understanding dictates that increased comfort via improved connectivity and continuity (e.g., fewer conflict or transition areas) results in decreased travel time for cyclists and results in more balanced mode share.

**City of Grand Junction
Commuting Characteristics**

The information below summarizes the U.S. Census American Community Survey 5-year (2018–2022) averages for commuting characteristics for people age 16+ for the City of Grand Junction.

Car, truck or van	80.8%
Public transportation	0.6%
Walked	2.8%
Bicycled	2.7%
Taxi, motorcycle, other	1.9%
Worked from home	11.2%

NCHRP Report 552: Guidelines for Analysis of Investments in Bicycle Facilities White Paper and the supporting *Translating demand and Benefits Research into Guidelines*² was used to inform potential trip reduction from increased use of bicycle facilities in the Interchange area.

Adult bicycle user trip reduction calculations used inform additional demand from new bicycle facility infrastructure in the Interchange area is based on the aforementioned research guidance, which includes:

▶ xxx

▶ xxx

Anticipated ADT Trip Reduction:

The proposed bicycle and pedestrian facilities in and near the Interchange, we estimate that this strategy will result in a reduction of **xx** trips/day.

Schoolpool Program

Schoolpool programs provide an opportunity to match students and families who live close to each other that could share rides to school. Given the proximity of Independence Academy to the Interchange, and associated spikes in local traffic and delays during school drop off and pick up times, this could be a promising strategy to help eliminate Interchange trips but also minimize local traffic concerns. The project team has access to zip code data for all students attending Independence Academy and could focus efforts on areas where trip lengths and use of the Interchange would support overall ramp trip reduction.

² [Pedestrian & Bicycle Information Center \(pedbikeinfo.org\)](https://pedbikeinfo.org)

Schoolpool programs are typically administered by agencies that provide rideshare matching programs, such as DRCOG’s Way-To-Go program. This program could serve as a pilot project for the region to test how best to implement schoolpool programs, how to monitor performance, and potentially expand across the Grand Valley based on success. The project sponsors would need to work together to determine how best to execute and manage this strategy.

Assuming that each household is completing two roundtrips to the school each day, and a goal of offsetting 5 percent of trips per day with the schoolpool program, there is the potential to reduce 120 trips per school day as shown in Table 3.

Schoolpool Trip Reduction Potential

Transport Policy research indicates that approximately 1.7 percent of students use carpooling to school as a primary mode of school travel while 25 percent of the survey sample participate in carpooling at times. Conservative estimates indicated that with an organized schoolpool program, **5 percent** of trips could be reduced through the program.

Table 3. Independence Academy Schoolpool Trip Reduction Estimates

Consideration	Inputs / Results
Independence Academy Enrollment	800
Independence Academy Households	600
Total Number of Household Trips/Day	2400
Reduction Goal	5%
Potential Trips Reduced	120
Number of Households Represented	30

Anticipated ADT Trip Reduction:

This strategy is anticipated to reduce **120 trips per day (1.6 percent)** based on a five percent capture rate for the schoolpool program.

Good-Faith Effort TDM Strategies

This section describes the TDM strategies that the project has incorporated into the larger TDM strategies that support the project, but do not necessarily directly result in trip reductions tied to the interchange ramps. These, however, are important considerations that provide a larger context of how project elements have been incorporated into the project and aid in reducing greenhouse gas emissions.

Mobility Hub / Park-and-Ride Amenities

An opportunity to provide electric vehicle charging stalls at a mobility hub/park-and-ride at the Interchange would support state and regional GHG emission reduction goals. This would likely add trips to the Interchange but meets the larger vision to support alternative transportation solutions.

Regional Ridesharing Program

There is potential to develop a ridesharing program that would match commuters with similar commuting patterns and minimize single occupant vehicles. The Interchange sponsors would need to commit to establishing and providing ongoing funding for a ridesharing program (akin to DRCOG's Way-To-Go program). A ridesharing program would allow employees to enter their information into a database that matches them with potential carpool options. This effort is aimed at residents in the Interchange area and would be augmented by a schoolpool program due to the proximity of Independence Academy, which does not have student bus transportation, resulting in high vehicle trips in the area particularly at peak periods.

Car Sharing Program

The City of Grand Junction is initiating a project to study the feasibility of an electric vehicle car share program in the City that focuses on, in particular, historically disadvantaged populations. A potential car share program, if deemed feasible, could expand to support overall TDM trip reduction strategies in the Interchange area.

Business Community Support

The project sponsors are interested in working with local businesses, the Chamber of Commerce, and the Grand Junction Economic Partnership to continue to educate and

inform the public about alternative modes of transportation to reduce VMT. The team commits to advancing conversations and determining opportunities to conduct outreach with employers to advance TDM strategies.

Local Micromobility Service

The City of Grand Junction has implemented a micromobility service in the Downtown area to permit shared e-scooter service. The City is assessing the potential to grow and expand the service beyond downtown. Based on the future Matchett Park serving as a key activity center and the adjacent residential neighborhoods, there may be an opportunity to expand the program to the 29 Road area to minimize VMT and provide additional options to capture short-trips.

TDM Strategies Summary

Table 4 presents the results of the analysis associated with 29 Road Interchange at I-70.

Table 4. TDM Strategies Trip Reduction Summary

TDM Strategy	Description	Trip Reduction
Bicycle and Pedestrian Facilities		X
Mobility Hub / Park-and-Ride		100
Schoolpool Program		120
	Trip Reductions	X
	Reduction Goal (Passenger Vehicles)	221
	Excess	X

Commitment to TDM Strategies

The City of Grand Junction and Mesa County understand the importance of committing to the implementation of these TDM strategies. The challenge of the interchange is that it is located on the northern edge of the developed portion of Grand Junction and the areas north of I-70 are currently dominated by Grand Junction Regional Airport (including adjacent commercial development) and Mount Garfield. Additionally, existing and planned employment and household land use density in/near the interchange is very low

and the uses (commercial) are not big attractors of trips that could readily use alternative modes of transportation. I-70 in this area supports a high number of regional trips (Moab, Fruita, Palisade, Rifle) and the location of employment hubs and activity centers result in origin and destination patterns that do not support ramp trips and/or ramp trip reductions. However, without the Interchange, there is limited access to the area, which then impedes growth and development.

Upon finalization, the commitment to the preferred TDM strategies to support trip reduction at the Interchange will be memorialized in the final Inter-governmental Agreement (IGA) for the interchange, per the *1601.1 Procedural Directive*.

Summary

The project team worked with local agencies, CDOT Region 3, CDOT Headquarters staff, and RTPO staff to evaluate and recommend the appropriate TDM strategies to develop the TDM Plan presented in this memo.

This collective group evaluated and identified numerous TDM strategies that would reduce daily trips and other efforts that act in the spirit of TDM and GHG emission reductions. The identified TDM measures (xxx, xxx, xxx) are anticipated to result in xxx daily trip reduction on the Interchange ramps and within the larger project area. This exceeds the CDOT identified trip reduction goal of xx trips.