2014

WELD COUNTY
PUBLIC WORKS
DEPARTMENT

WELD COUNTY ROAD 49 ACCESS CONTROL PLAN

Safety is THE Priority

COUNTY ROAD 49
ACCESS CONTROL PLAN

Prepared for:

Weld County Board of County Commissioners

Kersey Board of Trustees

Keenesburg Board of Trustees

Hudson City Council

Prepared by:

Weld County Public Works Department
1111 H Street
Greeley, CO 80632

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

APPENDICES

I. INTRODUCTION

A. Project Background

Weld County Road 49 (WCR 49) is one of the most important arterial roads in all of Weld County. It serves as an alternate north/south route for US 85 and functions as a significant truck route. Similar to US 85, WCR 49 carries a wide range of traffic types: long distance traffic, commuter traffic, inter-community traffic, agricultural traffic and considerable oil and gas traffic. General growth along the Front Range is anticipated to continue increasing over the next twenty years. The 2010 Census data reported a population increase in all the communities along the corridor since the 2000 Census. Hudson showed a 51% population increase, due primarily to the construction of a correctional facility; Keenesburg a 32% increase; Kersey increased 5% and Unincorporated Weld County increased 2%. According to the State Demographer, population estimates are projected to continue increasing anywhere from 2- 3% annually through 2035.

The Weld County 2035 Transportation Plan identified WCR 49 as the eastern spine of the county transportation system. The number one implementation strategy recommended from the Transportation Plan was safety, which is a priority to Weld County's transportation network. To support this strategy, the short range project list identified the creation of an access control plan for WCR 49 to preserve the roadways functional integrity and to enhance its safety in a cost-effective manner.

B. Study Area

The study area extends along WCR 49 from I-76 on the south end to US 34 on the north end. The study area encompasses approximately 20 miles of WCR 49. A map of the study area is depicted in **Figure 1**. Any extension of WCR 49 both north and south should follow the same principles identified in this planning document.

WCR 49 is predominately rural in character, primarily agriculture in nature, for the entire corridor. Traffic volumes range from 3,000 in the southern end to over 6,000 vehicles per day in the northern end.

There are currently more than **200** accesses on the 49 corridor. These accesses are a compilation of field, oil & gas, residential and commercial/industrial. Following is a summary of the approximate number of each type of access on the corridor:

- **1** signalized intersection
- **1** Interstate Interchange
- **15** County Road intersections
- **6** Future (new) accesses
- **18** Agriculture accesses
- **69** Oil & gas accesses
- **62** Residential accesses
- **58** Mixed Use accesses

The west side of the corridor has 106 accesses, not including county roads and the east side of the corridor has 107 accesses.

Figure 1 is a vicinity map of the County Road 49 corridor.

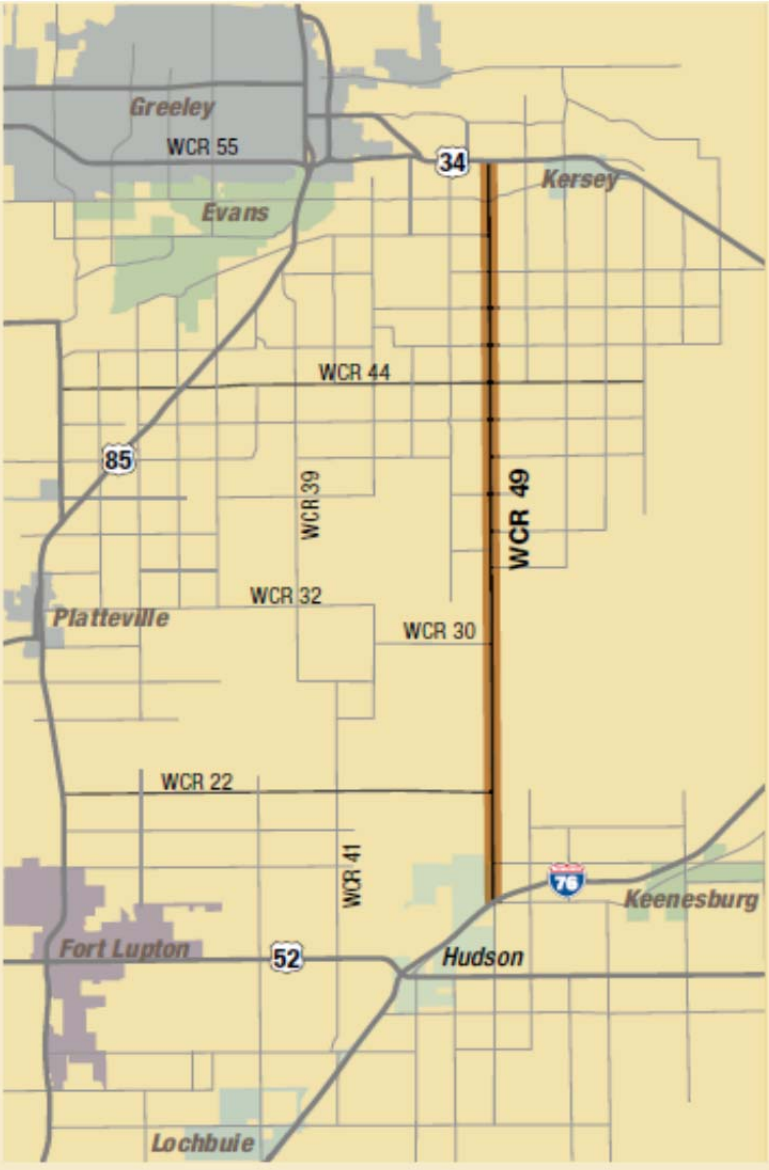


Figure 1: Vicinity Map

C. Purpose

The purpose of this planning effort is to work closely with residents, property owners, local government agencies, and the business community to develop a detailed, long-range Access Control Plan for WCR 49. The Plan will address how each access in the corridor should be treated, the cost for recommended access modifications, and the relative priority of the improvements. The ultimate goal is to develop an Access Control Plan which would be adopted by all four jurisdictions through an Intergovernmental Agreement.

D. WCR 49 ACP Goals and Objectives

GOALS:

The goal of this ACP is to provide access to properties, which preserve and enhance the functional integrity (safety, capacity, and mobility) of WCR 49 in order to efficiently move people and goods along the corridor in the safest manner possible. This can be accomplished through the following goals:

- When feasible, upgrade WCR 49 to the ultimate four-lane cross section;
- Reduce accidents along the corridor;
- Improve congested intersections;
- Limit the number of signals to arterial intersections;
- Reduce the number of access points;
- Require all new access points to comply with the criteria defined in this plan;
- Build interchanges, as appropriate;
- Purchase ultimate right-of-way section to preserve long-range transportation improvements;
- Utilize the secondary roadway network to reduce strain on WCR 49;
- Develop an access control plan that is harmonious with the existing surroundings and the community resources.
- Develop a prioritized list of projects;
- Pursue grant opportunities to fund the project list.

OBJECTIVES:

In order to achieve the stated goals, various project objectives and policies were identified. These include:

- To ensure WCR 49 functions as a truck route, no community will load limit any part of WCR 49.
- Improve traffic flow by identifying future locations which could develop traffic congestion issues and recommend mitigation measures.
- Determine locations for cross road connections to enhance the local road network.
- Establish future right-of-way needs along the corridor to ensure future planning efforts do not hinder the ability to obtain these right-of-way needs.
- Develop a list of projects needed to improve the safety of the corridor. Such projects could address sight distance, road widening, passing zones, setbacks, etc.
- Provide appropriate access to adjacent properties.
- Reduce traffic conflicts.
- Improve traffic safety.

- Provide community coordination for planning or development issues on the WCR 49 corridor.
- Use the arterial road classification to help preserve the functional integrity (safety, capacity, and mobility) of WCR 49.
- Consider the importance of the WCR 49 corridor for economic development opportunities;
- Develop cost estimates for construction projects, including costs to purchase right-of-way.

E. Process

This planning effort was just as important to Weld County as the communities near the corridor. Therefore, the County approached Keenesburg, Kersey, and Hudson about participating on this project. A Technical Advisory Committee (TAC) made up of staff from Hudson, Keenesburg, and Kersey met the third Monday of each month to provide knowledge and guidance regarding each community's future planning efforts and local conditions as well as technical matters of the plan. The Policy Advisory Committee (PAC) met the fourth Wednesday of each month and consisted of elected officials from the same communities. The PAC established the Access Control Plan's Policies, Goals and Recommendations. The Policy Advisory Committee representatives included:

- *Barbara Kirkmeyer, Weld County Commissioner*
- *Danny Kipp, Keenesburg Mayor*
- *Jay Pier, Kersey Trustee*
- *Coralie Slusher, Kersey Trustee*
- *Neal Pontius and Ray Patch, Hudson Mayor*
- *Jason Maxey, Weld County Planning Commissioner*
- *Robert Grand, Weld County Planning Commissioner, and*
- *Bruce Sparrow, Keenesburg Planning Commissioner*

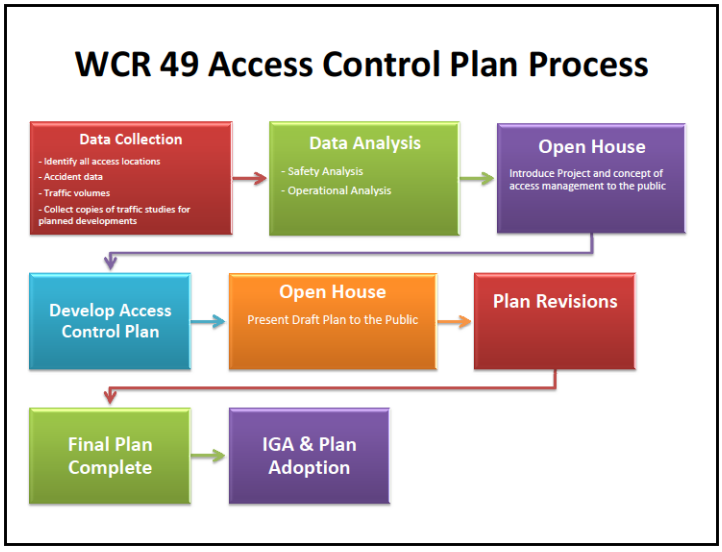


Figure 2: ACP Process

An essential element of coordinating this effort is the public participation process, which is described in more detail in *Chapter VI, Public Involvement.* The other steps in the process included data collection and analysis. Data collection involved inventorying all access locations, traffic crashes, traffic volumes, and collection of traffic studies.

Once all the information was collected, Public Works analyzed the safety and operational data. When the baseline information was gathered, the TAC set up a round of open houses to further gather safety and technical information from the public. This information helped to identify how the properties along the corridor utilized their accesses.

Upon completion of the "Draft" Access Control Plan, the TAC set up another, more formal, open house. The purposes of all the meetings were to allow the public to provide feedback or comment on the draft plan and correct any errors identified on the access maps.

Last, revisions were made to the Plan and presented to the Board of County Commissioners for adoption. Following adoption by the Weld County Commissioners, the same Intergovernmental Agreement was presented to Hudson, Keenesburg, and Kersey for adoption. A visual flow chart of the Access Control Plan process is shown in **Figure 2**.

II. ACCESS REQUIREMENTS

A. Functional Classification of Weld County Road 49

In 2009, Hudson annexed one mile of WCR 49 from I-76 to WCR 18. Both Weld County and Hudson classify this road as an arterial. The arterial road cross section for each community is different because one is a rural section and the other is an urban section with curb, gutter, and sidewalk. In addition, Weld County's rural arterial road section identifies a 140' right-of-way, where Hudson's arterial road cross section delineates a 100' right-of-way. For the purpose of this document and to stay consistent with future construction improvements, both agencies agreed to use 140' as the ultimate right-of-way section for the entire corridor.

Weld County defines arterials as roads that carry longer-distance traffic flow for regional, intercommunity and major community purposes. The primary difference between freeways and major arterials is access. Freeways have fully controlled accesses with no at-grade intersections, while arterials include limited at-grade intersections. Arterials can carry significant traffic volumes at higher speeds for longer distances, and are seldom spaced at closer than one-mile intervals.

The existing arterial intersections along the WCR 49 corridor include WCR 44 & WCR 22. WCR 54 and WCR 30 are classified as collector roads.

B. Arterial Access Requirements

The number, location, and type of access to adjacent properties are also controlled by access control criteria. The intent or purpose of these access requirements is to have guidelines which support no net increase in the number of access on WCR 49. Following are the access requirements for not only WCR 49, but all Weld County arterials:

- One access shall be granted to each parcel if it does not create a significant safety problem or degrade operation.
- Additional access may be granted; however, where the property abuts or has primary access from the general road system, any access to the arterial shall be considered an additional access.
- Typical spacing of intersecting roads shall be planned for one-half mile intervals, or based upon section lines. Exceptions to the one-half mile spacing for public ways is allowed when no reasonable alternative access to the general road system exists.
- Direct access to private property is permitted only when reasonable access cannot be obtained from the general road system.
- Direct access to the arterial should be allowed if it does not create a safety or operational problem, but would create a safety or operational problem for the general road system or alter the intended function of the existing road system.
- No additional access should be provided upon the splitting or dividing of parcels of land or contiguous parcels under the same ownership. Additional access shall be provided internally from the existing access.
- The speed limit on WCR 49 is predominately 65 miles per hour (mph). Towards I-76 and US 34 the speed limit is reduced. Speed limits for the corridor are in accordance with the 85th percentile per the MUTCD.

According to the Institute of Transportation Engineers (ITE), realistic speed limits do the following:

➔ Encourage compliance from the majority of drivers;
➔ Give clear reminder of reasonable and prudent speeds;
➔ Provide effective enforcement tool to the police;
➔ Encourage drivers to travel at the speed where the risk of crash involvement is the lowest.

What unrealistic speed limits do:

➔ Discourage voluntary compliance;
➔ Create the perception of “speed traps;”
➔ Cause public antagonism toward the police;
➔ Create a bad community image in the eyes of tourists; and
➔ May increase the potential for crashes.

C. Auxiliary Lane Requirements

Each access point creates potential conflicts between through traffic and traffic using that access. Each conflict is a potential crash. **Access management improves safety by separating access points so that turning and crossing movements occur at fewer locations.** This allows drivers passing through an area to predict where other drivers will turn and cross, and also provides space to add turn lanes.

Auxiliary lanes are useful in maintaining the safety, traffic flow and operations of the roadway and access. When auxiliary lanes are required by the County or as warranted by information obtained during the development review process, the property owner/developer is responsible for design, installation, and any right-of-way purchase needed to accommodate the required lane width.

Auxiliary lanes are required when unique location factors such as roadway speed and traffic density, access volume, the volume of commercial trucks, the influence of nearby accesses, existing auxiliary lanes close to the proposed access, nearby traffic control devices, available stopping sight distance, and where other topographic and roadway design factors exist that determine the need for auxiliary lanes.

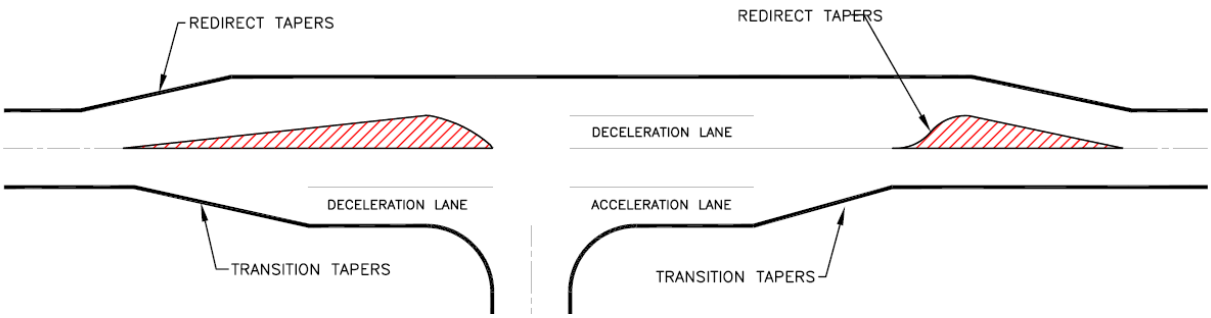
Auxiliary lanes are required to mitigate specifically identified and documented locations with safety and operation issues. These would include:

a) For any access where there is a high traffic volume on the roadway or using the access and the lack of acceptable gaps in traffic make use of an auxiliary lane necessary for vehicles to safely and efficiently enter or exit the roadway traffic flow through the use of available short gaps in traffic.

b) Where necessary for public safety and traffic operations based upon site and roadway specific conditions such as horizontal and vertical curves and other sight obstructions that cannot be removed.

Auxiliary lanes typically consist of one or a combination of a transition taper, full width auxiliary lane and storage length. The use of these components varies based on the type of access, through street classification, and site-specific conditions (grades).

Figure 3: Auxiliary Lane Design



i. Auxiliary Turn Lane Design Criteria

Auxiliary turn lanes shall be installed on collector and arterial roadways according to the following criteria:

- A left deceleration lane with storage length plus taper length is required for any access with a projected peak hour left ingress turning volume greater than 10 vph. The design elements for a left turn lane are the taper length, lane length, storage length, which in combination makes up the left turn lane.

- A right deceleration lane with storage length plus taper length is required for any access with a projected peak hour right ingress turning volume greater than 25 vph. The design elements for a right turn and deceleration lanes are the approach taper, lane length, storage length, which in combination makes up the right turn lane.

- A right turn acceleration lane with taper is required for any access with a projected peak hour right turning volume greater than 50 vph and the roadway has only one lane for through traffic in the direction of the right turn. The design elements for a right acceleration lane are the transition taper and acceleration length.

- A left turn acceleration lane with transition taper may be required if it would be a benefit to the safety and operation of the roadway. A left turn acceleration lane is generally not required when the acceleration lane would interfere with the left turn ingress movements to any other access.

ii. Tapers

To determine the required acceleration and deceleration lane and transition taper length, see design criteria presented in **Table 1**. The length of the required transition taper is determined by multiplying the distance of offset by the transition taper ratio value associated with the posted speed in **Table 1**. The beginning and ending point of all tapers shall be rounded.

- **Transition Tapers:** The basis for designing an acceleration lane and transition taper is to provide sufficient length for a vehicle to accelerate to the appropriate speed and merge into the through traffic lanes without disrupting traffic flow. **Table 1** provides the required acceleration lane and transition taper design lengths by design speed. Acceleration lane lengths in **Table 1** shall be adjusted for a grade of 3% or more. The total length of the acceleration lane includes the values of both the lane and transition taper. The length of a transition taper is calculated by multiplying the width of the lane by a standard ratio. The beginning and ending point of all tapers shall be rounded.

- **Redirect or Straight Tapers:** Redirect tapers shall be used where an exclusive turn lane, median or other redirection of vehicles is necessary and where redirection of the flow of traffic is necessary to accommodate the exclusive turn lane or median due to constraints. Redirect tapers are required for redirecting through travel lanes and shall be installed in conformance with **Table 1**. If the redirect taper would result in a horizontal curve design deficiency for the through movement, the horizontal curve shall be corrected. Redirect taper should be designed as straight tapers with the beginning and ending points rounded.

Table 1: Acceleration/Deceleration Lane Design Criteria

Acceleration/Deceleration Lane Design Criteria										
Posted Speed Limit (MPH)	25	30	35	40	45	50	55	60	65	70
Deceleration Length (ft)	180	250	310	370	435	500	600	700	800	900
Acceleration Length (ft)	N/A	190	270	380	550	760	960	1170	1380	1590
Transition Taper (Ratio)	7.5:1	8:1	10:1	12:1	13.5:1	15:1	18.5:1	25:1	25:1	25:1
Straight Taper (Ratio)	15:1	15:1	20:1	30:1	45:1	20:1	55:1	60:1	65:1	70:1

iii. Storage Lengths

The storage length for an auxiliary lane can be determined by the information summarized in **Table 2**. These lengths are based on the average length of a passenger vehicle and the estimated turning vehicles per hour. Estimated lengths for buses, larger trucks and recreational vehicles must be determined and submitted for County review.

Table 2: Auxiliary Lane Storage Lengths

Auxiliary Lane Storage Lengths				
Turning Vehicles Per Hour	<30	30	60	100
Require Storage Length (ft)	25’	40’	50’	100’

The basis for designing the length of required storage is to provide sufficient length for vehicles to queue within the lane without affecting other traffic movements. Table 2 provides the required storage lengths for stop-controlled intersections and the required calculated storage lengths for signal-controlled intersections. If the Department of Public Works determines that meeting the required storage length is impractical or results in an unsafe condition, the minimum storage length shall be based on the mean arrival rate, but in no case shall the minimum storage length be less than 50 feet.

iv. Auxiliary Lane Conflicts

Following are additional standards for auxiliary lane design:

a. No driveway shall be permitted within the transition area of any auxiliary lane.
b. In the event a portion of an auxiliary lane extends across one or more adjacent properties, the County may require the property owner/developer to obtain any necessary right-of-way.
c. In the event an auxiliary lane is constructed within 100 feet of an arterial-arterial intersection, the property owner/developer is responsible for the design, acquisition of required right-of-way, relocation of utilities, and construction of the lane to such intersection.
d. Where two intersections have exclusive turn lanes that overlap, or the ending points of the exclusive turn lanes have less than 300 feet or one-half their length of separation (whichever is shorter) and a significant structure or topographical feature does not preclude widening, a continuous exclusive turn lane shall be constructed between the intersections to improve roadway consistency, safety, and to maintain edge of pavement continuity.
e. If restrictive topography allows only one exclusive turn lane, normally a left turn deceleration lane is given first priority. Where a left turn is installed and the travel lanes must be redirected, an overlay of pavement is required.

III. INVENTORY OF EXISTING CONDITIONS

A. Property Information

Weld County Road 49 has been designated as an arterial road by both Weld County and Hudson. The arterial classification expectation is to maintain a high-speed, limited access road that will carry large volumes of traffic and will be maintained as a high mobility facility into the future. The establishment of an Access Control Plan will expand upon this arterial road classification and will better formalize future access conditions along the corridor.

B. Intersection type

Weld County Road 49 has over 220 accesses, which are categorized as follows:

- Public Road Signalized Intersection – These intersections are at-grade, full movement public road intersections with a traffic signal. The only signalized intersection on WCR 49 is at the north end at US 34.

- Public Road Unsignalized Intersection – These intersections are typically full movement, at-grade, stop controlled intersections. Unsignalized public intersections occur at each county road crossing. These interersections may or may not have acceleration or deceleration lanes.

- Private Accesses – along the corridor these type of accesses serve many uses. The majority of accesses along the corridor are private accesses, which provide direct access to residences, oil and gas facilities, irrigation ditches, and farms.

Based on the above access descriptions, the accesses along the corridor are distributed as follows:

- 1 public road intersection with a traffic signal (US 34 & CR 49).
- 15 unsignalized public road intersections (CR 18 – CR 54).
- 213 private accesses.

The Department of Pubic Works prepared an access inventory for the entire corridor. This inventory includes pictures of each existing access on WCR 49 beginning at the north end (US 34) and ending at the south end (I-76). You can find a copy of the access inventory in **Appendix A**.

Intersection Spacing:

Weld County recognizes that property owners have a right of reasonable access to the county road system. However, within an environment where population growth increases traffic volumes and operational pressures on the general transportation system (rural or urban), access control is crucial to protect the general health, safety and welfare of the public. Access Control is used to maintain smooth traffic flow, to provide road right-of-way drainage, and to protect the functional level of the public county roads while meeting local and regional transportation needs and interests. Access Spacing Criteria for local, collector, and arterial roads are shown in **Table 3**. Currently, an access permit must be obtained from the County or from Hudson for any access or intersection constructed on WCR 49 within their jurisdiction.

Table 3: Access Spacing Criteria

Access Element	Arterial	Collector	Local
Minimum Distance between Intersections: Signalized Unsignalized	 2640 ft 1320 ft	 NA 1320 ft	 NA 330 ft
Minimum Distance between Low Volume Accesses	660 ft	660 ft	150 ft
Minimum Distance between Low Volume Access & Intersection	660 ft	660 ft	330 ft
Minimum Distance between Driveways	660 ft	330 ft	75 ft
Minimum Distance between Low Volume Access & Driveway	660 ft	330 ft	150 ft
Minimum Corner Clearance between Driveways & Intersections	660 ft	330 ft	330 ft

Notes:

a. Distances are measured as separation between access point centerlines.
b. If proposed access points to a property can meet multiple spacing, the County may require the larger spacing be used.
c. Low Volume Access is defined as access with daily traffic volumes between 21 and 99 vehicles.
d. Low volume accesses may be restricted (now or in the future) to right-in, right-out movement only.
e. A field access or driveway is defined as 20 trips per day or less.

1. Local Roadways:

Local roads feed collector roads. Local roads are not intended to access arterials. Access standards to local roadways shall be governed by Table 3. Contact the Department of Public Works to determine if an access permit is required. Whenever possible, shared accesses will be given priority; shared access points or easements shall be a minimum of 30 feet wide; and contain a minimum 20-foot wide all-weather roadway.

2. Collector Roadways:

Access standards to collectors are also shown in Table 3. An access permit must be obtained from the County for any access or intersection constructed onto a collector. An access or new intersection onto a collector is not permitted unless it meets the spacing requirements in Table 3 and an alternative access or intersection to a lower classified road is not feasible. No more than one access

shall be allowed to an individual or to contiguous parcels under the same ownership unless it can be shown that the additional access would not be in conflict with local safety regulations and the additional access would not be detrimental to the health, safety and welfare of the public, and is necessary for the efficient use of the property.

3. *Arterial Roadways:*

Access standards onto arterial roadways can be found in Table 3. An access permit must be obtained from the County for any access or intersection constructed onto an arterial. An access or new intersection onto an arterial is not permitted unless an access/intersection to a lower classified road is not feasible and it meets the spacing requirements stated in Table 3 and does not interfere with the location, planning, and operation of the general street system and access to nearby properties; whenever possible shared accesses will be given priority. No more than one access shall be allowed to an individual or to contiguous parcels under the same ownership unless it can be shown that allowing only one access would be in conflict with local safety regulations and the additional access would not be detrimental to public health, safety and welfare and is necessary for efficient use of the property. Intersections shall be spaced no less than one half mile apart on Arterials, unless such spacing is impractical or impossible due to topographic or other physical limitations as determined by the Department of Public Works. The type of access operation, i.e., full movement, three-quarter (¾) movement, or right-in right-out movement will be determined by the Department of Public Works.

4. *State Highway & Interstate Systems:*

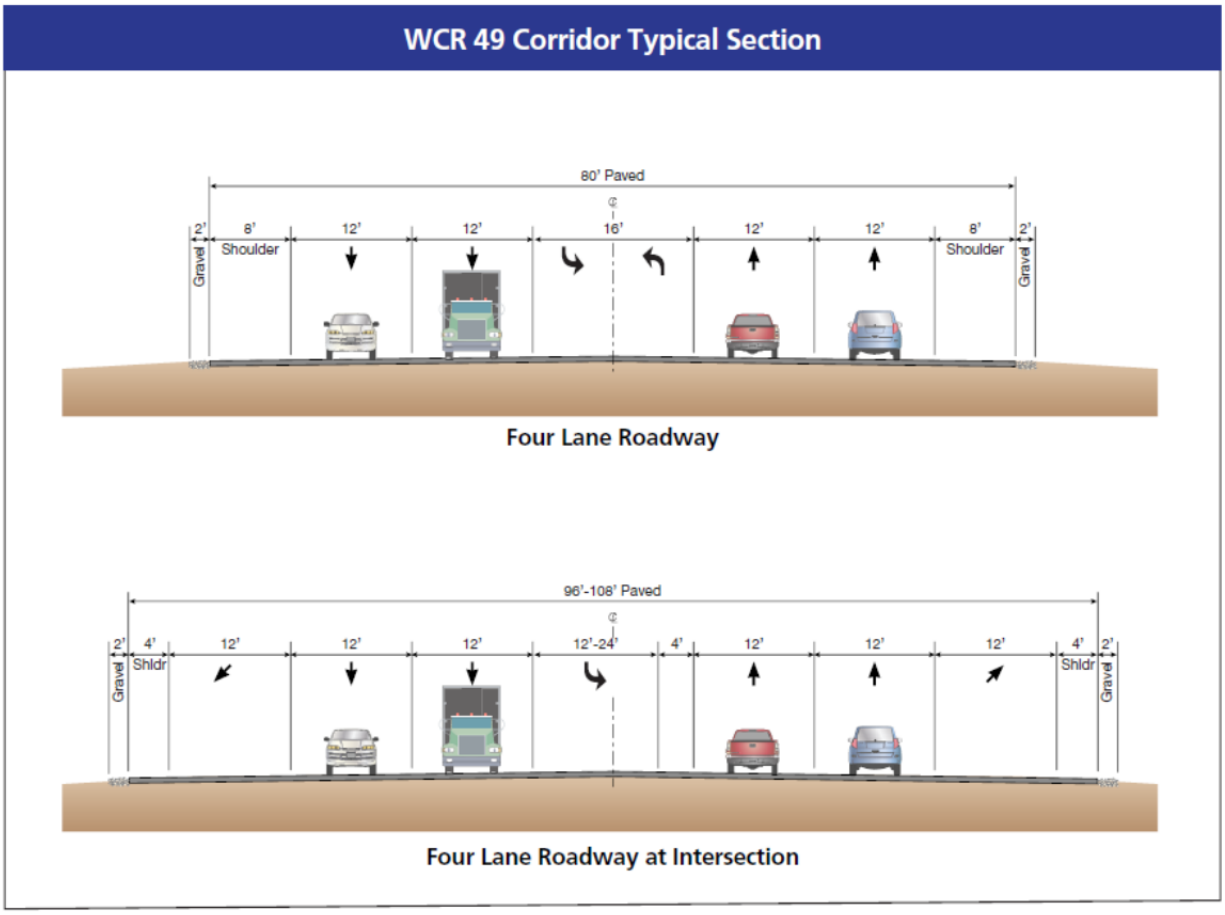
The Colorado Department of Transportation (CDOT) and the Federal Highway Administration (FHWA) rules and regulations shall apply to all highway and interstate accesses. Weld County takes no jurisdictional authority over access onto a highway or interstate.

C. Roadway Characteristics

Typical Section:

The existing road section for WCR 49 is currently constructed to the "interim" cross-section, which consists of two 12-foot travel lanes, 8-foot paved shoulders, and roadside ditches. Construction of the "ultimate" road section would comprise four 12-foot travel lanes, 4' paved shoulders, and a paved median. The extension of WCR 49, also called the Weld County Parkway, to the north of US 34 is intended to have a median, as depicted in **Figure 4**. This cross section will become more prevalent at county road intersections as traffic volumes continue to increase and could become the typical section when widening the rest of the 49 corridor to the north and south.

Figure 4: WCR 49 Cross Section with paved median

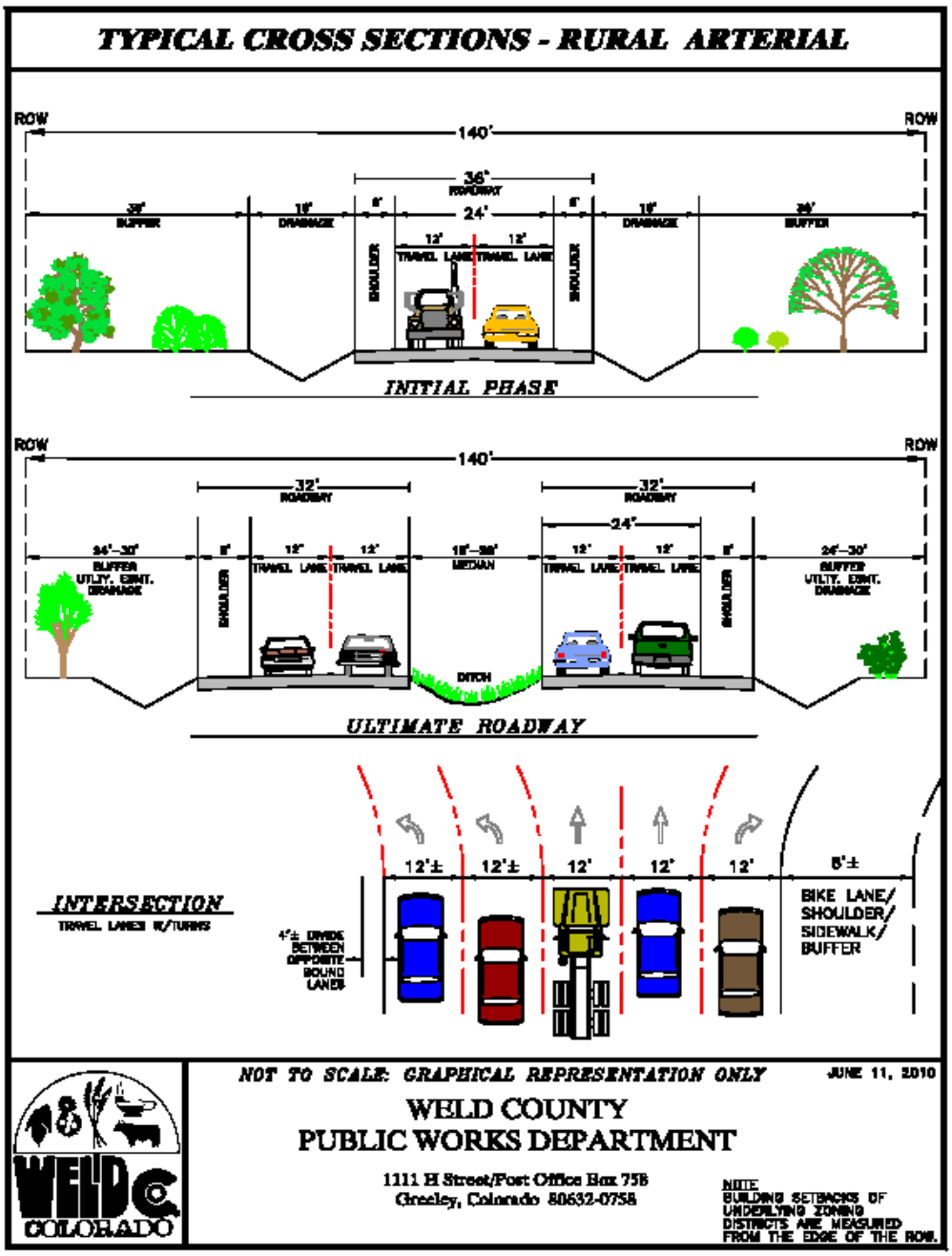


Right-of-way:

The "interim" or current right-of-way along WCR 49 is eighty feet (80'). The ultimate right-of-way section being reserved, as development occurs, is one hundred forty feet (140'). The planning level cross section for WCR 49 is shown in **Figure 5**. Figure 5 also depicts a picture of a depressed median, which is similar to US 85.

Regardless of which cross section is used to construct the widening of WCR 49, the County will pursue purchasing right-of-way for the ultimate 140' section. Weld County has identified right-of-way preservation as an important contributing need to Public Work's Capital Improvement Plan (CIP). In order to avoid purchasing any homes or structures impacted by the widening of the corridor, Weld County, whenever feasibly possible, will work with property owners to shift the road alignment.

Figure 5: Arterial Cross Section



D. Types of Accesses:

a. **Field Access**-The primary purpose of a field access is to provide direct access to agricultural land. They are generally used seasonally during planting and harvesting seasons.

b. **Residential Access**-These accesses provide direct access to single-family residences and are generally used multiple times a day. Single family residential accesses can also be used to access agricultural land.

c. **Oil & Gas Access**- Oil and Gas accesses allow vehicles to access oil and gas wells, tank batteries, and ancillary equipment from county roadways. These accesses could also be classified with commercial/industrial accesses. Since the WCR 49 corridor has so many of these accesses, they were called out separately.

d. **Commercial/Industrial Access**- These provide direct access to businesses or industrial properties and are used multiple times a day.

e. **Multi-Use/Shared Accesses**- Shared access are when two properties or uses (e.g., residential & field) utilize the same access. Whenever possible and feasible, shared access will be provided to serve two or more adjacent properties. Shared access is to be centered on the common property line. A written access agreement may be required.

f. **Temporary Access**- Any road access which will be closed after a limited period of time, for example, temporary construction project. A temporary access shall not exceed six (6) months.

E. Access Inventory

Public Works inventoried every access on the corridor beginning at the north end (US 34) and ending at the south end (I-76). The accesses numbered with "W" are on the west side of WCR 49 and the accesses with "E" are on the east side. The spreadsheet not only identifes all the existing access locations by type, but also labels the accesses with safety concerns, as well as recommendations for future safety improvements. Following is a screen shot of this spreadsheet, which can be found in it's entirety in **Appendix A.**

12/12/201

WCR 49 ACP - Access Inventory

West side of WCR 49

ACCESS #	ACCESS TYPE	LAND USE SERVED	ACCESS WITH SAFETY CONCERN	RECOMMENDED IMPROVEMENTS	ADDITIONAL INFORMATION
W-1	Agriculture	Field		Movement Conversion	Due to close proximity to US 34, may need to reduce full movement
W-2	Mixed Use	Oil & Gas Loop & Ag (Field)	Close proximity to accesses W-2 &3	Access Consolidation and	Same property owner - Power Pole
W-3			Oil & Gas loop access	Access Elimination	ASC - Shared Access Utility Pole Safety Concern
W-4	Mixed Use	Residential & Ag (Field)	Continuous long access	Access Consolidation	Residential loop
W-5	Agriculture	Field	Close proximity to access W-6	Access Consolidation	May not be able to consolidate due to three different ditch owners
W-6	Agriculture	Field/Ditch	Close proximity to access W-5	Access Consolidation	May not be able to consolidate due to three different ditch owners
W-7	Mixed Use	Residential & Field	Close proximity to access W-8	Access Consolidation	Access forms a loop; same property owner; share access
W-8	Agriculture	Field	Close proximity to access W-7	Access Consolidation	ASC - Shared Access
W-9	Agriculture	Ditch	Close proximity to railroad	Access Relocation	ASC - Relocate access to old CR 54
W-10	Agriculture	Ditch	Close proximity to railroad	Access Relocation	ASC - Relocate access to old CR 54
		WCR 54			
W-11	Future Access	Future Access			Land locked parcel
W-12	Oil & Gas	Oil & Gas			
W-13	Mixed Use	Residential & Field	Close proximity to access W-14	Access Consolidation	Same property owner
W-14	Mixed Use	Agriculture (Field) & O&G	Close proximity to access W-13	Access Consolidation	Same property owner
W-15	Agriculture	Ditch	Sight Distance	Access Relocation	ASC - Relocate access to CR 52 (BR49/52A)
		WCR 52	Sight Distance	Hill Cut	Reconstruct with road widening
W-16	Mixed Use	Residential & Field	Multiple accesses on one parcel	Access Consolidation	Relocate access to CR 52
W-17	Mixed Use	Agriculture (Field) & O&G	Multiple accesses on one parcel	Access Consolidation	Relocate access to CR 52
W-18	Oil & Gas	Oil & Gas			
W-19	Oil & Gas	Oil & Gas			
W-20	Oil & Gas	Oil & Gas	Sight Distance	Hill Cut	ASC - Sight Distance
W-21 & 22	Oil & Gas	Oil & Gas	Close proximity to CR 50	Access Relocation	ASC - Relocate access to CR 50
		WCR 50	Sight Distance	Hill Cut	Reconstruct with road widening
W-23 & 24	Residential	Residential Loop	Sight Distance	Access Consolidation	ASC - Consolidate loop access w/redevelopment
		WCR 48	Sight Distance		ASC - On east side of CR 48
W-25	Residential	Residential Driveway	Close proximity to W-26		22893 - ASC - Sight Distance
W-26	Residential	Residential Driveway	Close proximity to W-25 & W-27		22821
W-27	Residential	Residential Driveway	Close proximity to W-26		22757
W-28	Future Access	Future Access			Appears to be parallel future road along CR 49 to CR 48
W-29	Residential	Residential Driveway			22643
W-30	Residential	Residential			Nonexclusive shared (22578)
W-31	Mixed Use	Residential & Field			Big Foot
		WCR 46			
W-32 & 33	Oil & Gas	Oil & Gas Loop	Oil & Gas loop access	Access Elimination	ASC - Shared Access
W-34	Mixed Use	Residential and Field	Sight Distance	Access Consolidation/Relocation	ASC - Slight SD 21737 & 21735
W-35	Mixed Use	Oil & Gas and Field	Close proximity to adjacent access	Access Consolidation	two accesses side by side one gated (feedlot)
		WCR 44	Sight Distance	Hill Cut	Reconstruct with road widening
W-36 & 37	Mixed Use	Oil & Gas Loop & Ag (Field)	Close proximity to each other	Access Elimination	Consolidate loop into a shared access
W-38 & 39	Mixed Use	Oil & Gas Loop & Ag (Field)	Close proximity to each other	Access Elimination	ASC - Close one
W-40 & 41	Residential	Residential Driveway Loop	Close proximity to each other	Access Consolidation	ASC - Consolidate loop access w/redevelopment
		WCR 42			
W-42 & 43	Oil & Gas	Oil & Gas Loop	Close proximity to each other	Access Elimination	ASC - Close one
W-44	Oil & Gas	Oil & Gas	To be closed	Access Relocation	To be closed in accordance with USR and relocated to CR 40
W-45	Oil & Gas	Oil & Gas	Sight Distance	Hill Cut	Nonexclusive across from CR 40
		WCR 40			
W-46	Oil & Gas	Oil & Gas			Gated - restricted access
W-47	Oil & Gas	Oil & Gas			Gated - restricted access
		WCR 38	Sight Distance	Hill Cut	Reconstruct with road widening
W-48	Oil & Gas	Oil & Gas	Close proximity to CR 38	Access Relocation	Relocate access to CR 38
W-49 & 50	Oil & Gas	Oil & Gas Loop	Close proximity to each other	Access Elimination	Close one - close to access W-49/50
W-51 & 52	Oil & Gas	Oil & Gas Loop	Close proximity to each other	Access Elimination	Close one - close to access W-47/48
W-53	Oil & Gas	Oil & Gas			
		WCR 36			
No accesses between CR 36 and CR 34.5 on the west side.					
		WCR 34.5			

In addition to the inventory spreadsheet, Public Works also took pictures of every access location and matched those pictures to the access numbers in the spreadsheet. The picture inventory can be found in **Appendix B.**

Following is **Figure 6**, which shows a sample page of the picture inventory.

Figure 6: WCR 49 Corridor Access Inventory

Access	South Bound	North Bound
WCR 44 Intersection		
Access Relocated to CR 44 Oil & Gas (loop) Noble		
Access E-48 Oil & Gas		
Access E-46 & 47 Oil & Gas Loop		
WCR 46 Intersection		

F. Existing Levels of Service

Level of Service (LOS) is a transportation term that measures the level of congestion on a roadway. This roadway efficiency classification is specified by a letter designation on an interval scale consisting of six levels (A-F). These levels are graded from an optimal Level of Service A (free-flow) to an unacceptable Level of Service F (highest levels of congestion and corrective action is warranted). Intermediate grades between level A and F designate increasing congestion and decreasing roadway efficiency. This classification is consistent with the recommendations of the Highway Capacity Manual. Weld County has adopted a LOS C for all county roads. As shown in **Table 4**, WCR 49 functions at a LOS A.

Table 4: WCR 49 Levels of Service

From	To	Date	AADT	Truck%	FFS(HV)	Sfm(85th)	Vf	fHV	Pt	Et	PTSF	Vp	PHF	fG	LOS
54	US 34	3/14/2011	5408	29	64.799	63	225.333	0.972	0.290	1.100	22.490	289.835	0.800	1.000	A
52	54	3/14/2011	6430	26	69.133	67	267.917	0.975	0.260	1.100	26.068	343.603	0.800	1.000	A
50	52	6/26/2009	3118	32	72.040	71	129.917	0.969	0.320	1.100	13.698	167.593	0.800	1.000	A
48	50	7/28/2010	3581	29	70.191	69	149.208	0.972	0.290	1.100	15.524	191.919	0.800	1.000	A
46	48	7/28/2010	3795	25	70.258	69	158.125	0.976	0.250	1.100	16.313	202.598	0.800	1.000	A
44	46	7/21/2010	3208	35	71.074	70	133.667	0.966	0.350	1.100	14.102	172.931	0.800	1.000	A
42	44	7/21/2010	3385	42	71.140	70	141.042	0.960	0.420	1.100	14.911	183.707	0.800	1.000	A
40	42	6/26/2009	3021	34	72.010	71	125.875	0.967	0.340	1.100	13.325	162.693	0.800	1.000	A
38	40	8/21/2009	3183	33	70.063	69	132.625	0.968	0.330	1.100	13.975	171.252	0.800	1.000	A
36	38	6/26/2009	2980	35	68.997	68	124.167	0.966	0.350	1.100	13.169	160.641	0.800	1.000	A
34.5	36	6/26/2009	2976	35	71.996	71	124.000	0.966	0.350	1.100	13.152	160.425	0.800	1.000	A
34	34.5	5/21/2010	3676	31	70.225	69	153.167	0.970	0.310	1.100	15.929	197.394	0.800	1.000	A
32	34	11/10/2010	5099	34	70.705	69	212.458	0.967	0.340	1.100	21.445	274.602	0.800	1.000	A
30	32	1/21/2009	4334	34	72.449	71	180.583	0.967	0.340	1.100	18.548	233.404	0.800	1.000	A
22	30	6/25/2009	2920	34	71.976	71	121.667	0.967	0.340	1.100	12.910	157.254	0.800	1.000	A
20	22	8/6/2010	3193	31	71.064	70	133.042	0.970	0.310	1.100	13.990	171.457	0.800	1.000	A
18	20	8/6/2010	3193	31	71.064	70	133.042	0.970	0.310	1.100	13.990	171.457	0.800	1.000	A

Note: For a two lane roadway, if the Percent Time-Spent-Following (PTSF) is less than or equal to 35 and the average travel speed is greater than 55mph the LOS is A. This calculation did not include the auxiliary lanes at WCR 54 & WCR 30.

G. Traffic Volumes

An analysis of the existing traffic conditions was performed during the early stages in the development of the Access Control Plan. In order to conduct the analysis, existing traffic volume data was taken along WCR 49 in June 2009, July 2010, and March 2011. The traffic volume data collected included average annual daily traffic (AADT), AM Peak Hours, PM Peak Hour, Average Speeds, Truck Percentages, and accident data.

AADT counts identify the amount of through traffic traveling along the corridor for an entire day. The AM and PM peak hours show when the bulk of traffic travels through the corridor. See **Table 5** for the current traffic data. Traffic volumes on the WCR 49 corridor between US 34 and I-76 vary from 2,900 to 6,400 vehicles per day (vpd) with the highest volumes near the intersection of US 34 and WCR 49.

Table 5: WCR 49 Traffic Volumes

CR	From	To	Date	AADT	AM Peak Hour	PM Peak Hour	Average Speed	Truck%
49	54	US 34	3/7/2013	6253	6:30	4:45	62 MPH	52%
49	52	54	3/7/2013	6914	6:15	4:45	66 MPH	52%
49	50	52	8/15/2013	5335	5:30	4:30	70 MPH	47%
49	48	50	8/15/2013	4976	5:30	4:45	70 MPH	50%
49	46	48	4/5/2013	6607	5:30	4:00	66 MPH	24%
49	44	46	3/7/2013	5838	6:30	4:45	66 MPH	50%
49	42	44	3/7/2013	5629	6:30	4:30	70 MPH	51%
49	40	42	4/5/2013	5609	6:00	4:30	66 MPH	47%
49	38	40	4/3/2013	5822	5:30	5:15	67 MPH	36%
49	36	38	4/3/2013	5641	5:30	5:15	67 MPH	38%
49	34.5	36	3/15/2013	6003	6:00	5:00	67 MPH	39%
49	34	34.5	3/7/2013	5506	6:30	4:30	70 MPH	52%
49	32	34	3/20/2013	5842	5:30	3:45	68 MPH	37%
49	30	32	3/7/2013	5592	6:30	4:30	70 MPH	54%
49	28	30	3/7/2013	5297	6:45	4:30	70 MPH	50%
49	26	28	3/20/2013	7335	6:30	6:00	66 MPH	29%
49	22	24	3/6/2013	5250	6:15	4:45	70 MPH	48%
49	20	22	3/6/2013	5092	6:00	4:45	70 MPH	46%
49	18	20	3/13/2013	6432	6:45	5:00	63 MPH	31%

As a part of the Weld County Traffic Program, a vehicle classification count was also conducted on WCR 49 at various locations throughout the corridor. Vehicle classification counts are designed to identify the mix of different types of vehicles (e.g., passenger vehicles, small and large trucks, and buses) that compose the traffic stream. The percentage of trucks travelling on WCR 49 varies between 25% up to 42% of the vehicles travelling on WCR 49. The segment of WCR 49 with the highest volume of truck traffic was near the intersection of WCR 44 and WCR 49, where the truck percentage was 42%. Vehicle classification counts also identify the average speed that vehicles are driving on WCR 49. The average speed of vehicles ranges from 63 mph to 71 mph.

H. Safety Analysis

The safety analysis was assessed on WCR 49 from US-34 to I-76 and was based on accident data compiled for the period of January 1, 2001 through December 31, 2011. In summary, there were 242 reported accidents with 5 fatal accidents producing 7 deaths and 9 injuries, 51 injury accidents producing 83 injuries and 186 property damage only accidents. **Figure 7** shown below illustrates the WCR 49 corridor accidents by severity. On the next page, **Table 6** lists the corridor accidents by what year the accident took place.

Figure 7: Accident Types

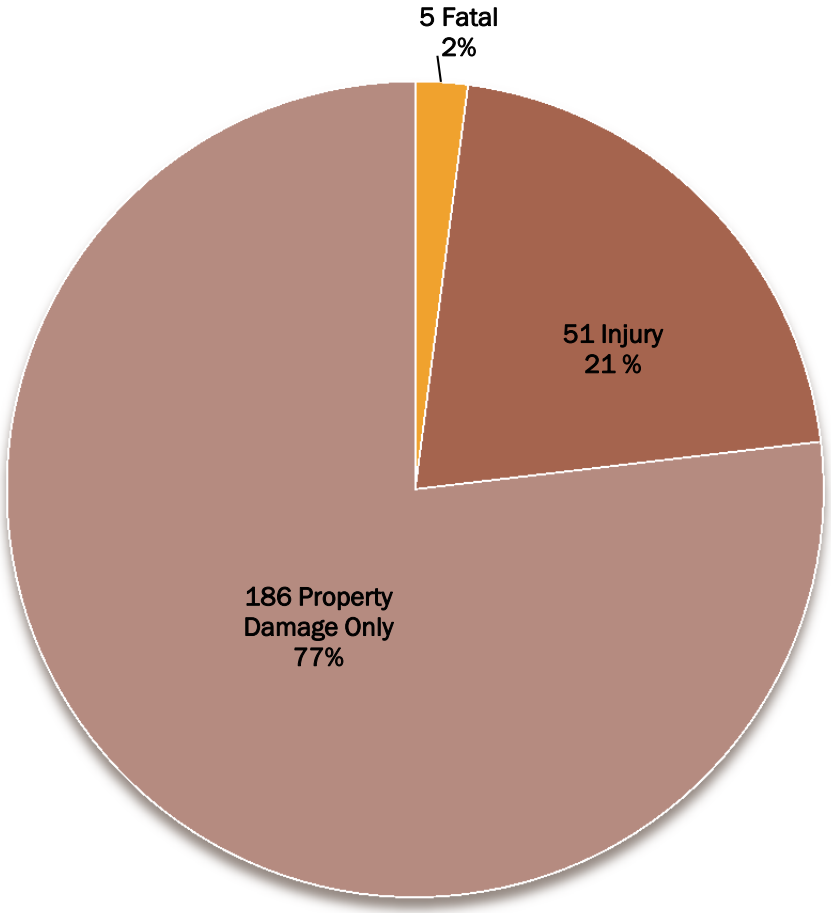


Table 6: Accident Type by Year

Year	Property Damage Only (PDO)	Injury	Fatal	Total
2011	21	5	1	27
2010	21	4	2	27
2009	23	4	1	28
2008	16	6	0	22
2007	26	5	0	31
2006	16	3	0	19
2005	18	5	0	23
2004	18	5	0	23
2003	11	5	1	17
2002	7	8	0	15
2001	8	2	0	10

As part of the safety analysis, a summary of accident types for the WCR 49 corridor was performed. Due to the variety of conditions along the corridor there was not a prevailing accident type along the entire corridor; however, the predominant types of accidents were collisions with a fixed road side object (13.2%) and rear end collisions (11.6%).

Accident types are defined and categorized below in **Table 7**, which also identifies the number of corridor accidents for each accident type.

Table 7: Definition of Accident Types

Classification	Definition	Accidents	Percentage
Rear End	One vehicle strikes the rear of the vehicle in front of it because that vehicle is stopped or slowing down.	28	11.6%
Broadside	A vehicle traveling through an intersection in the opposite direction strikes a left turning vehicle at a 90 degree angle.	20	8.3%
Sideswipe	The side of one vehicle making contact with the side of another vehicle that is traveling in the same or opposite direction.	22	9.1%
Fixed Object	A vehicle travels off the roadway and strikes an object along the roadside.	32	13.2%
Animal	A vehicle strikes a wild animal in the roadway.	22	9.1%
Overtaking Turn	Two adjacent approach vehicles, whose paths are unintended to come in conflict, collide as a result of one or both vehicles over- or under-turning. This type would also include a vehicle initially going straight, but leaving its proper lane of travel and colliding with a stopped or moving vehicle on an adjacent approach road or driveway.	25	10.3%
Pedestrian	A vehicle and pedestrian collide in which the collision between the two is the first event and also took place within the roadway.	2	0.8%
Overturning	A vehicle overturns on or off the roadway without first having been involved in some other type of crash.	17	7.0%
Head On	Two vehicles, traveling in opposite directions, strike one another front first.	7	2.9%
Alcohol	A driver was under the influence of drugs or alcohol.	8	3.3%
Unidentified	The accident casual factor was not identified and/or the report was not available.	59	24.4%

To analyze the accidents further, **Table 8** includes a breakdown of the individual accidents into the Colorado State Patrol Causal Factors. **Table 8** shows the majority of accidents occurring on WCR 49 are caused by inattentive driving.

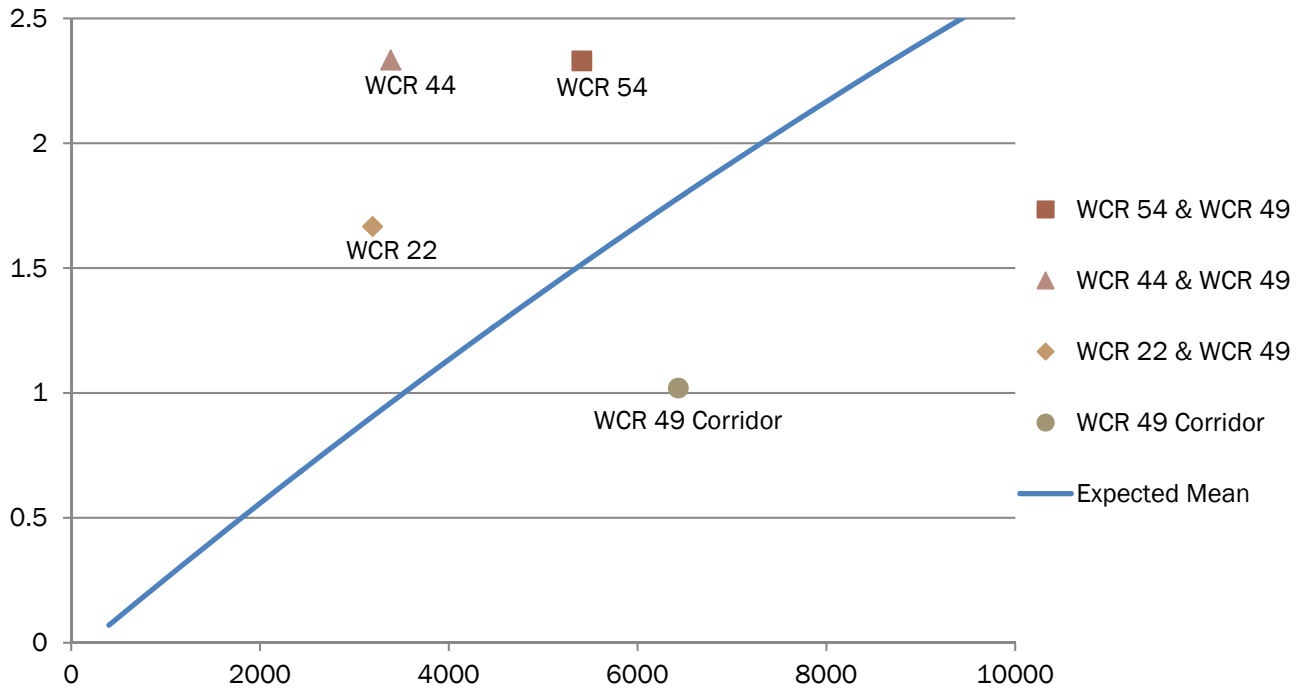
Table 8: Individual Accident Types

Traffic Code	Definition	Number of Accidents
A01	Animal Caused	**22**
D00	Under the influence of alcohol	**8**
M02	Exceeded safe speed	**25**
M04	Failed to yield right-of-way	**25**
M05	Improper left turn	**4**
M06	Other improper turns	**2**
M07	Lane violations	**21**
M08	Improper passing	**12**
M09	Wrong side of road	**2**
M10	Following too closely	**7**
M11	Drove while asleep	**12**
M12	Inattentive to driving	**40**
M14	Disregarded stop sign	**7**
M18	Defective vehicle	**7**
M20	Spilling of load	**3**
M21	Improper backing	**1**
M22	Pedestrian violation	**1**
M23	All others (miscellaneous)	**43**

Weld County Public Works also prepares an annual Hazard Elimination Study of the County's roadway network each fall. Included in this study is an analysis of all hotspot locations at county intersections. In 2012, the study found there were three hot spot locations identified on WCR 49. They included the intersections of WCR 54, WCR 44, and WCR 22 as they intersect WCR 49. These locations were then plotted on the Weld County Safety Performance Graph, which is a tool used to measure the ratio of allowable accident rates versus traffic volumes. With this information, Public Works was able to determine the hot spot intersections of WCR 54, WCR 44, WCR 22 and WCR 49 were above the expected mean, which indicates they are problem locations and safety improvements should be initiated.

In addition, as part of the Safety Analysis, the entire WCR 49 corridor as a whole was also reviewed and the results were well below the expected mean. What this means is that outside of the three hotspot locations, the WCR 49 corridor has an acceptable accident rate. A graphical representation of the data is shown below in **Figure 8.**

Figure 8: County Road 49 Safety Analysis



Weld County Public Works completed construction of intersection improvements at WCR 54 & WCR 49 during the summer of 2012. The intersection of WCR 44 & WCR 49 received federal Hazard Elimination funding and is currently in the design process with plans for construction during the spring of 2014. In 2014, the intersection of WCR 22 & WCR 49 is being designed with construction improvements anticipated in 2015. To remain proactive, the entire WCR 49 corridor is continuously monitored for public safety concerns.

IV. ACCESS CONTROL TECHNIQUES

A. Definition of Access Operations

The WCR 49 Corridor has both public and private accesses serving various land uses. Private accesses along the corridor may serve many uses. The majority of these private accesses provide direct access from businesses, private residences, agricultural land, and utilities to WCR 49. The only other existing accesses on WCR 49 are County Road (unsignalized) intersections. These intersections are typically full movement, at-grade, and two-way stop-controlled intersections. In this corridor, only a few of these intersections currently have acceleration/deceleration lanes.

For the purpose of this access control plan, a summary of access operations are defined below.

FULL

Full Movement Access - means all potential movements for the access would be allowed including the left-in, left-out, right-in, right out, and through movement if there is another access to accept traffic on the opposite side of the street.

3/4

Three quarter (3/4) Access – movement indicates a restrictive movement access onto WCR 49. Three of the four movements in and out of the access would be permitted. Allowed movements include the left-in, right-in, and the right-out. Prohibited movements include the left-out and through movements. A raised median would be the ultimate means of enforcing these restrictions, but an interim measure may involve a raised island at the driveway.

RI/RO

Right-in/Right-out (RI/RO) Access – Indicates a restrictive movement access onto WCR 49. Right turn movements in and out of the access would be permitted. Allowed movements include the right-in and the right-out. Prohibited movements include the left-in, left-out and through movements. A raised median would be the ultimate means of enforcing these restrictions, but an interim measure may involve a raised island at the driveway.

ASC

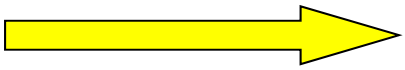
Access with Safety Concern – Indicates there is a safety issue that warrants improvements or some form of access modification.

When movements are described as "in" or "out," (e.g., "right-in/right-out) , movements from WCR 49 onto an adjacent property would be "in" and movements from an adjacent property onto WCR 49 would be "out."

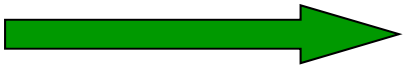
When a safety concern is present at an access, Weld County may restrict or modify the type of access operation to ensure life safety movement at the access.

These access operation symbols may be identified on the access maps in Chapter Five.

Also depicted on the access maps are the access types. The access maps labels each access type with a colored arrow.



RESIDENTIAL ACCESS



FIELD/AGRICULTURAL ACCESS

OIL & GAS/COMMERCIAL ACCESS

MIXED ACCESS

FUTURE ACCESS

ACCESS TO BE CLOSED
(Access to remain open until the land use changes, or until safety problems develop that necessitate modification, relocation, or closure of access).

Every access on the corridor will have an arrow labeling the access type. By establishing the access use, it helps identify the existing level of intensity on the property. Should the land use intensity of the property change, such as become more intensive, then a change of use may occur.

An access change of use is defined as a use substantially different from the previous use of a building or land, which may affect such things as parking, drainage, vehicular circulation, traffic volumes anticipated to use the access point, landscaping, building configuration, noise or lighting. A change of ownership does not include any of the factors listed above and therefore shall not be considered a change of use.

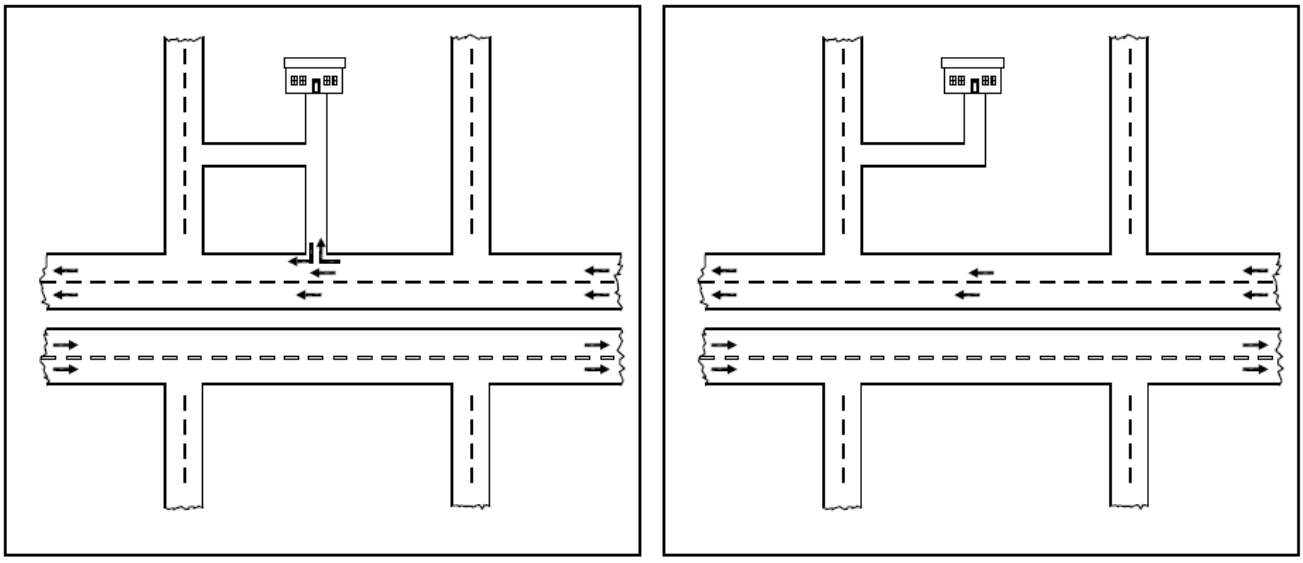
B. Access Control Techniques

There are several areas along WCR 49 that existing accesses can be modified to improve functionality of the corridor. By allowing the elimination, movement conversion, relocation and consolidation of accesses, these options have unique benefits to improve traffic flow, operations, and safety while maintaining adequate access to the adjacent land uses.

1. Elimination

Access elimination is typically used at locations where a property has more than one access point. For example, many of the properties on WCR 49 have multiple accesses with some properties having as many as three direct access points onto WCR 49. In order to meet the objectives of an ACP to reduce the number of access points for safety and operational reasons, all properties adjacent to WCR 49 should be limited to a single access in all locations where reasonable access to secondary roads is not possible. Please see **Figure 9** for a graphically representation of access Elimination.

Figure 9: Access Elimination



2. *Movement Conversion*

The purpose of access movement conversion through the use of median treatments is to eliminate some or all turning movements in order to reduce the number of conflicts between left turning vehicles and through vehicles on the highway. Based on the access code, full movement intersections should be limited to ½ mile spacing for the majority of the corridor. Then by creating a ¾ movement accesses and right in-right out accesses the number of conflicts will be reduced. Please see **Figure 10** which shows an example of a full movement intersection.

Figure 10: Typical Full Movement

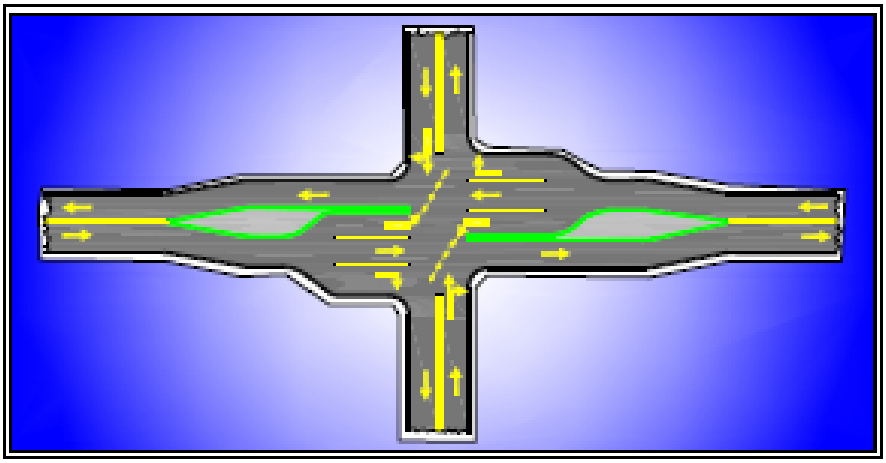


Figure 11 depicts a three-quarter (¾) movement intersection. The difference between a full movement intersection and a ¾ intersection is the restricted left hand turn lane.

Figure 11: Typical ¾ Movement Intersection

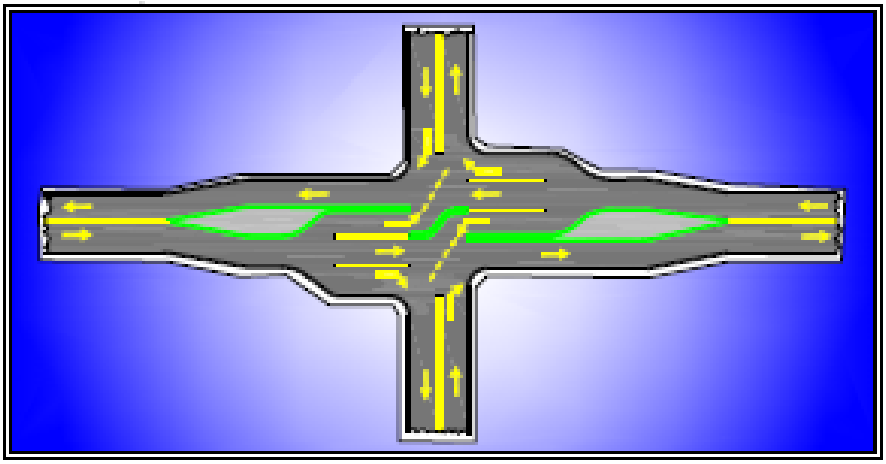
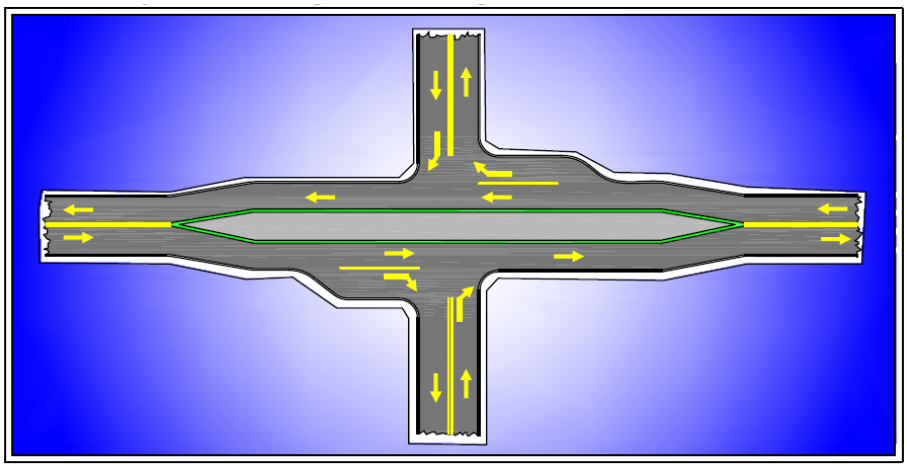


Figure 12 represents a right-in/right-out (RI/RO) intersection. A RI/RO intersection eliminates all left hand turning movements. Typically a median or some type of barrier is required to ensure only right hand turns can be made into and out of the intersection.

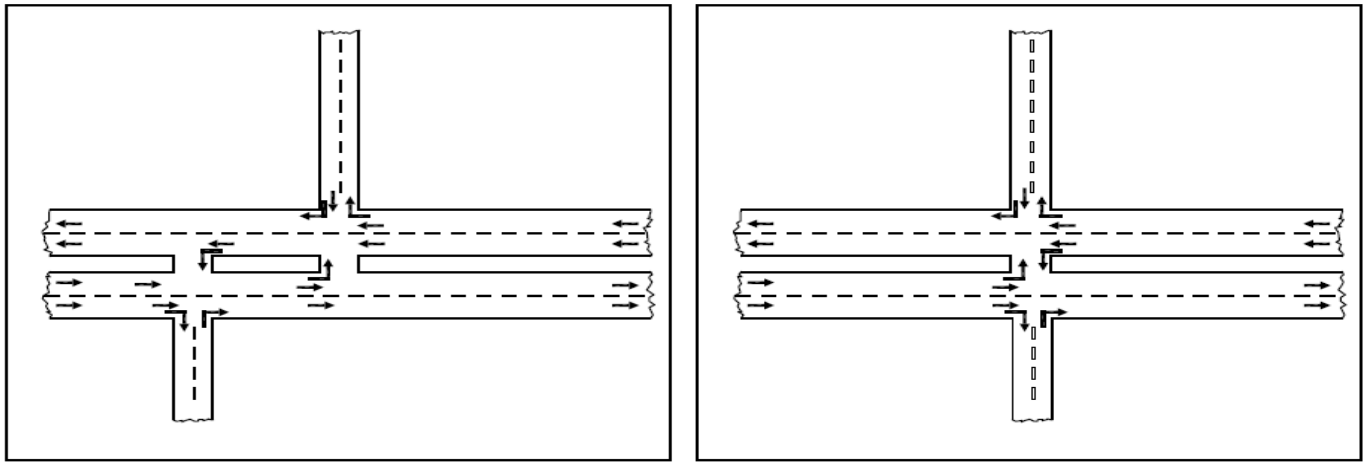
Figure 12: Typical Right-in/Right-out Intersection



3. *Relocation*

Access relocation is a method that would either align opposite approaches to create a more familiar intersection design or move an existing access point to a new location. As development occurs or as new roads are constructed, many of these direct connection driveways can be closed on WCR 49 and moved to new roads. This will create better spacing of intersections and reduce the number of conflict points on WCR 49. Please refer to **Figure 13** for a before and after example of access relocation.

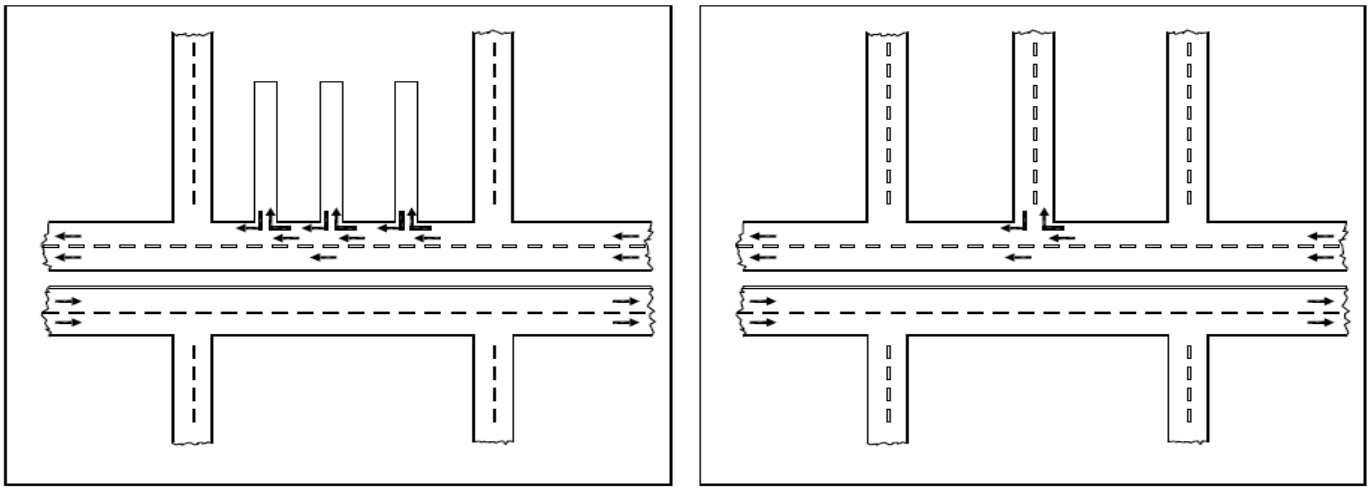
Figure 13: Access Relocation



4. *Consolidation*

Access consolidation is used to reduce the number of access points along the corridor. Several locations along WCR 49 are prime candidates where access consolidation could be applied. Some locations exist where adjacent property owners have individual driveways less than 50 feet apart, these two driveways could be consolidated into a single point to reduce conflicts, improve operations, and maintain adequate access to all properties. Please see **Figure 14** for a before and after example of an access relocation.

Figure 14: Access Consolidation



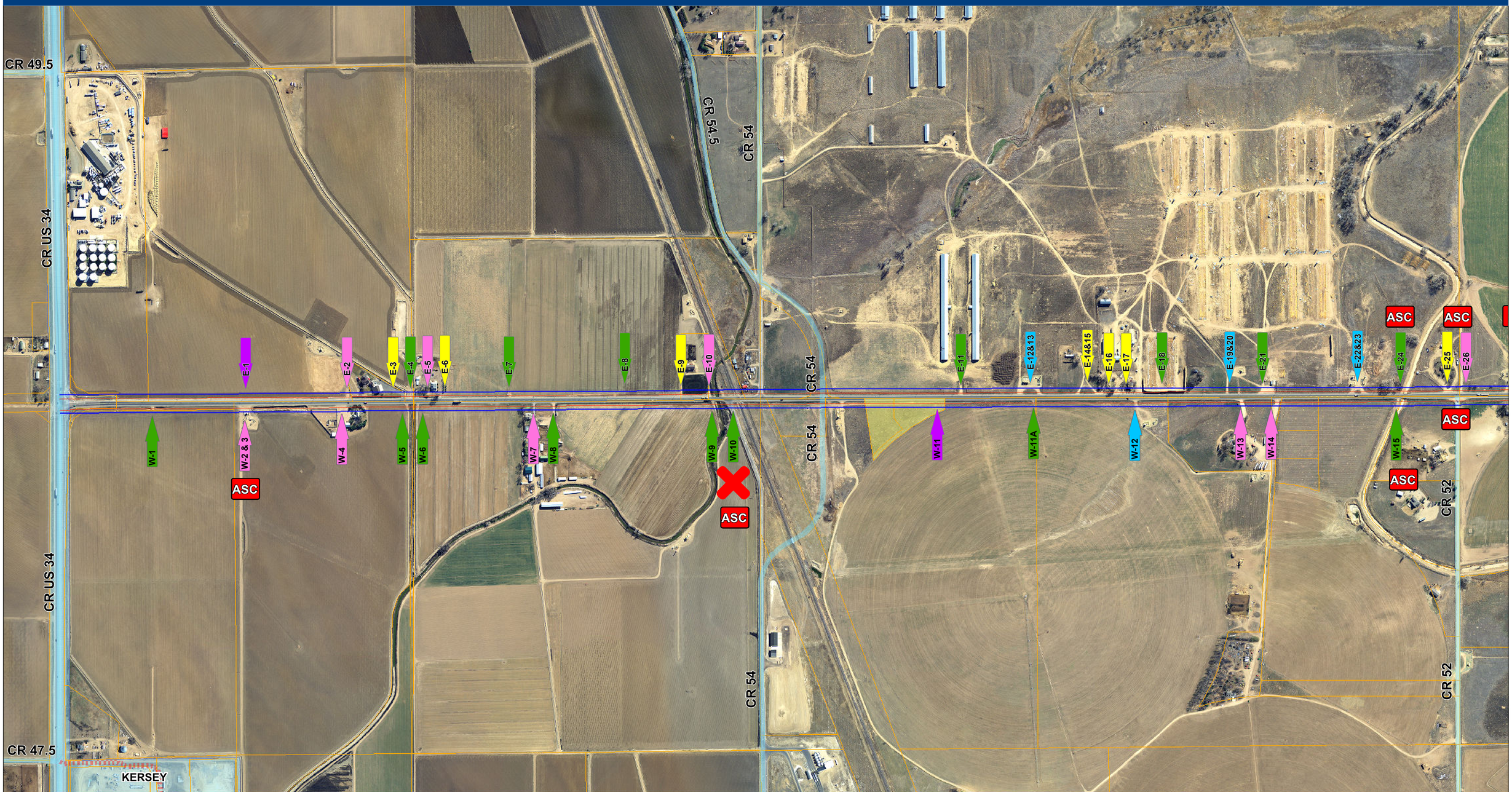
V. ACCESS CONTROL PLAN MAPS

This chapter presents the Access Control Plan maps, which have been developed after thorough input from the Technical Advisory Committee, the Policy Advisory Committee, other local governments, including school districts, as well as residents.

After considering both the existing and future conditions of the corridor, this plan defines how each access should be treated. In addition, a project list was developed along with cost estimates for the recommended improvements. That list can be found in Chapter VII.

The maps on the following pages were developed to address traffic operations and safety in the WCR 49 Corridor study area.

WELD COUNTY ROAD 49 ACCESS CONTROL PLAN



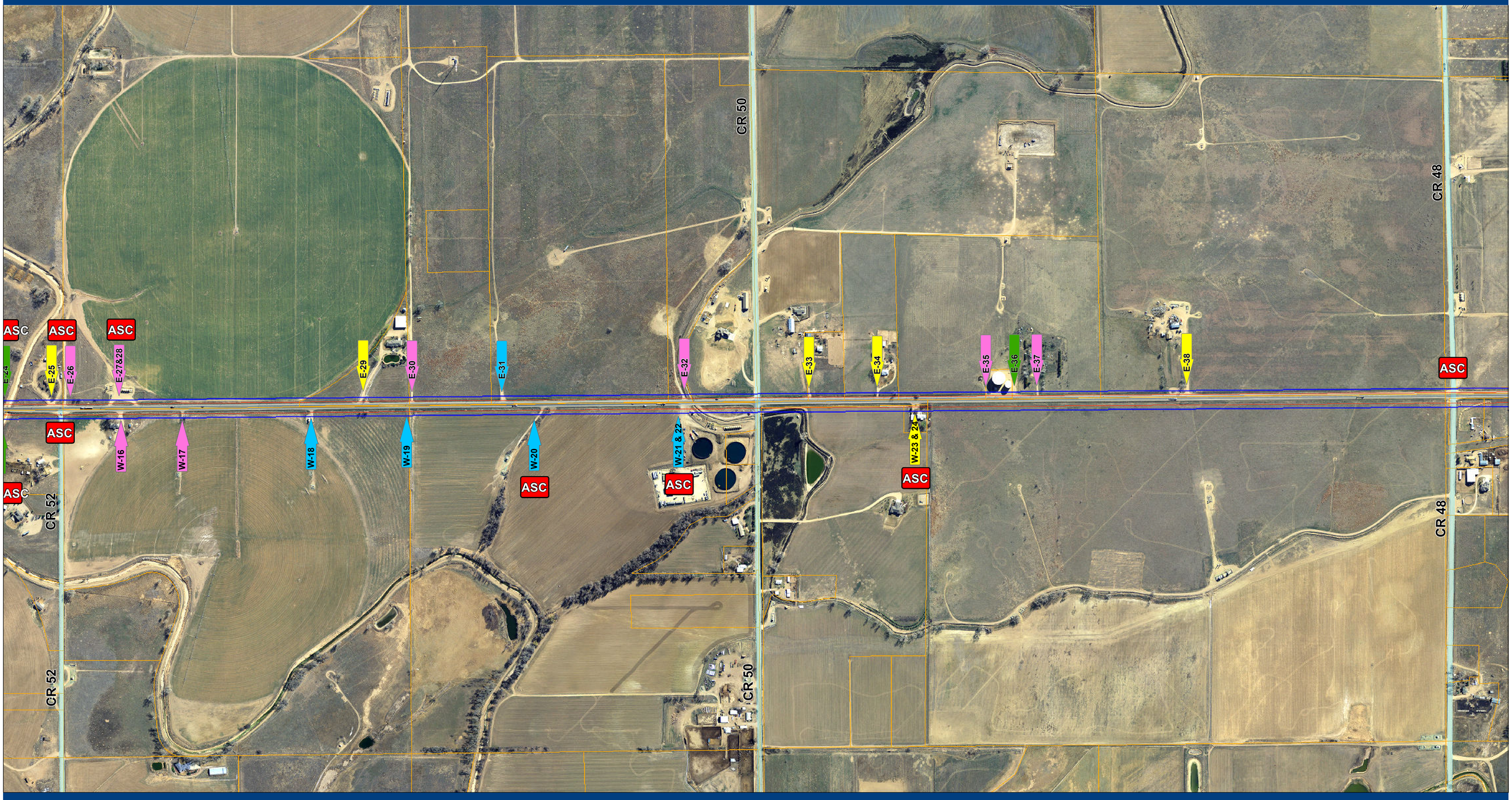
Highway 34 to County Road 52

Aerial Plot 1 of 10

- ASC — Access with Safety Concern
- To Be Closed
- Future Access
- Oil and Gas / Commercial Access
- Agriculture Access
- Residential Access
- Mixed Use Access
- Property Lines
- Land Locked Property
- Private or Other Road
- County Roads
- 80 foot Right of Way
- 140 foot Right of Way

0 1,550 Feet

WELD COUNTY ROAD 49 ACCESS CONTROL PLAN



County Road 52 to County Road 48

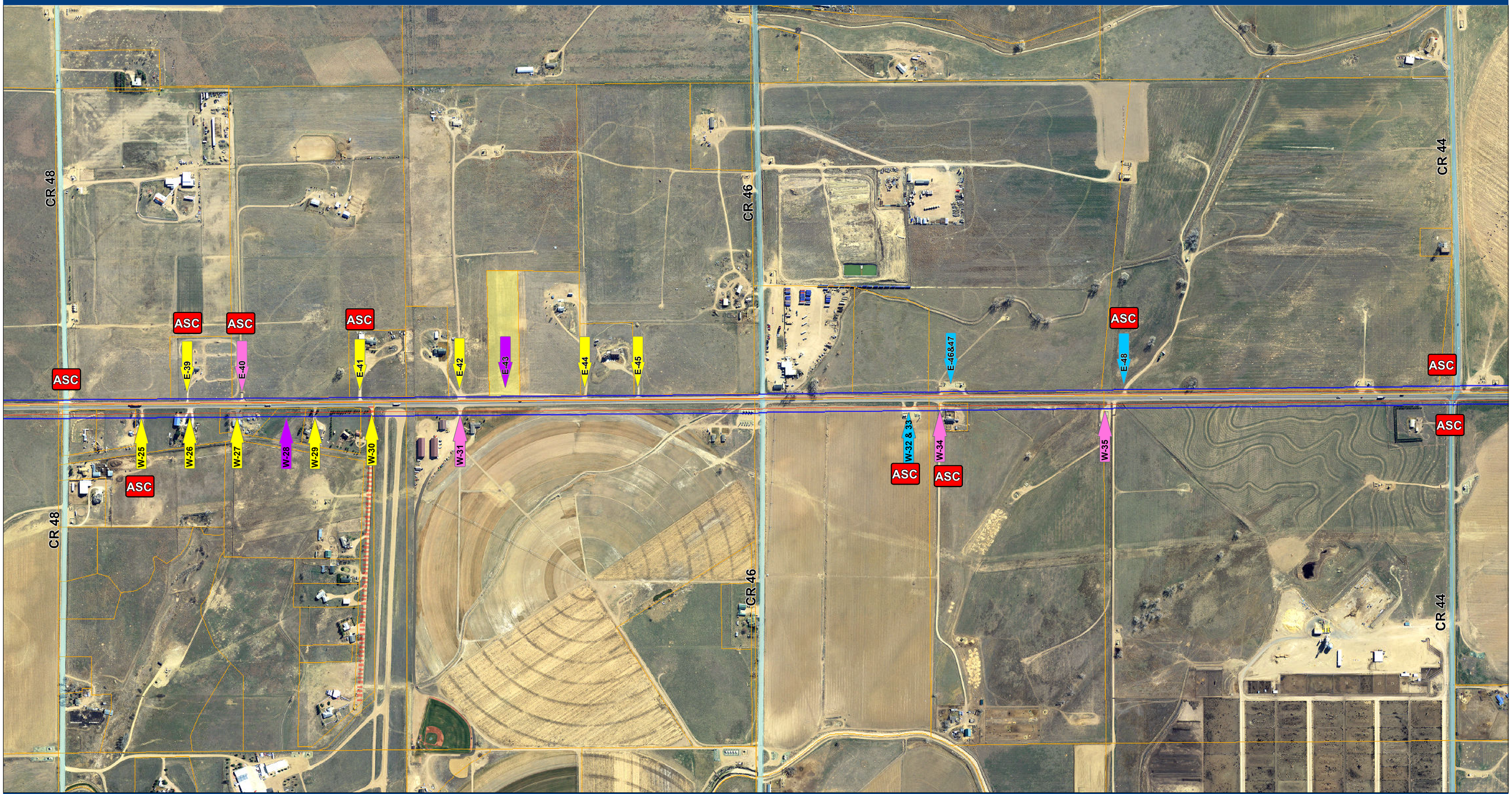
Aerial Plot 2 of 10

WCR 49 Access Control Plan — Keenesburg • Roggen • Hudson — WELD COUNTY

- ASC — Access with Safety Concern
- To Be Closed
- Future Access
- Oil and Gas / Commercial Access
- Agriculture Access
- Residential Access
- Mixed Use Access
- Property Lines
- Land Locked Property
- Private or Other Road
- County Roads
- 80 foot Right of Way
- 140 foot Right of Way

0 1,550 Feet

WELD COUNTY ROAD 49 ACCESS CONTROL PLAN



County Road 48 to County Road 44

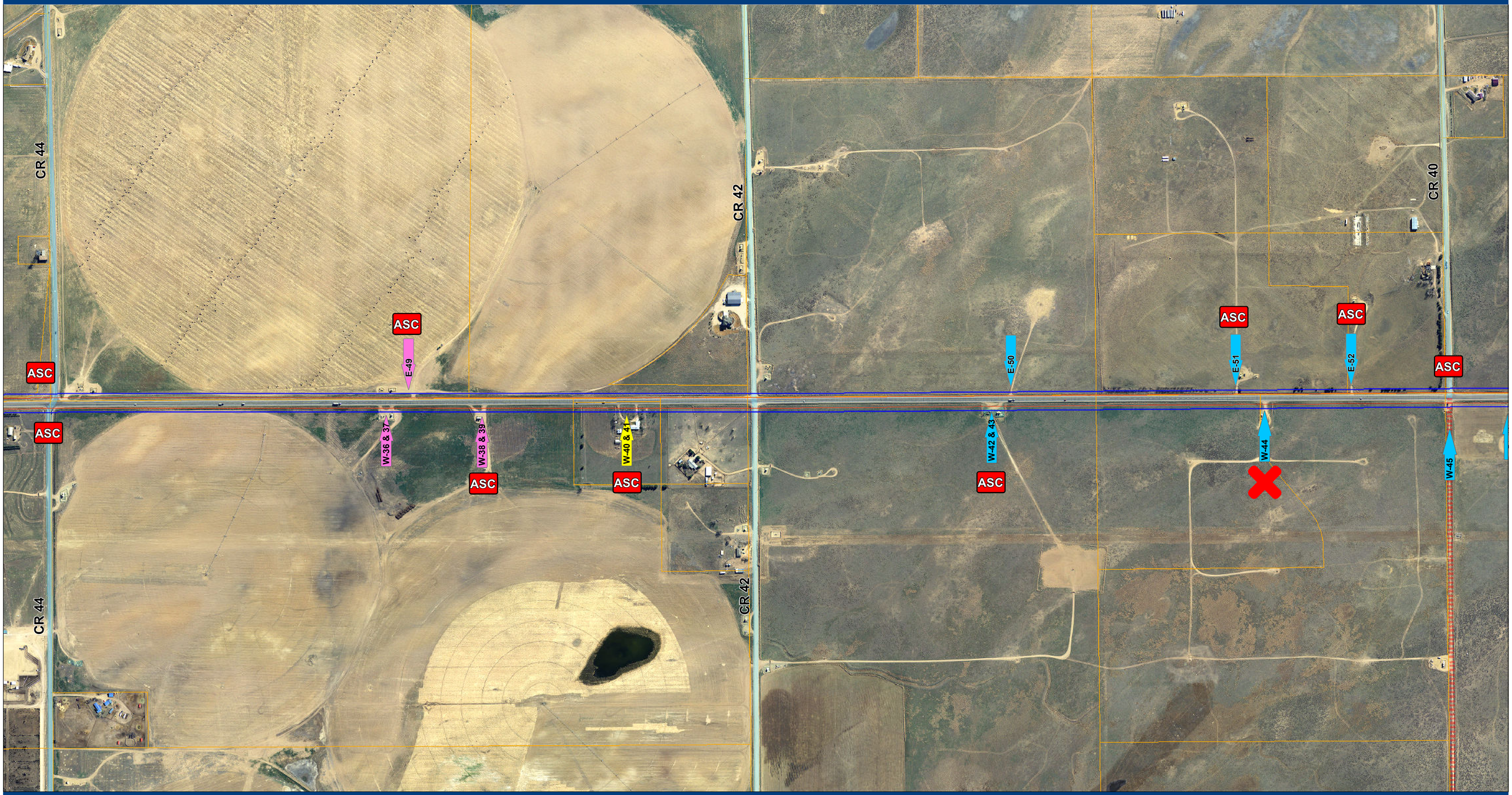
Aerial Plot 3 of 10

WCR 49 Access Control Plan — Kersey • Keenesburg • Hudson — WELD COUNTY

- ASC — Access with Safety Concern
- To Be Closed
- Future Access
- Oil and Gas / Commercial Access
- Agriculture Access
- Residential Access
- Mixed Use Access
- Property Lines
- Land Locked Property
- Private or Other Road
- County Roads
- 80 foot Right of Way
- 140 foot Right of Way

0 — 1,550 Feet

WELD COUNTY ROAD 49 ACCESS CONTROL PLAN



County Road 44 to County Road 40

Aerial Plot 4 of 10

ASC — Access with Safety Concern

To Be Closed

Future Access

Oil and Gas / Commercial Access

Agriculture Access

Residential Access

Mixed Use Access

Property Lines

Land Locked Property

Private or Other Road

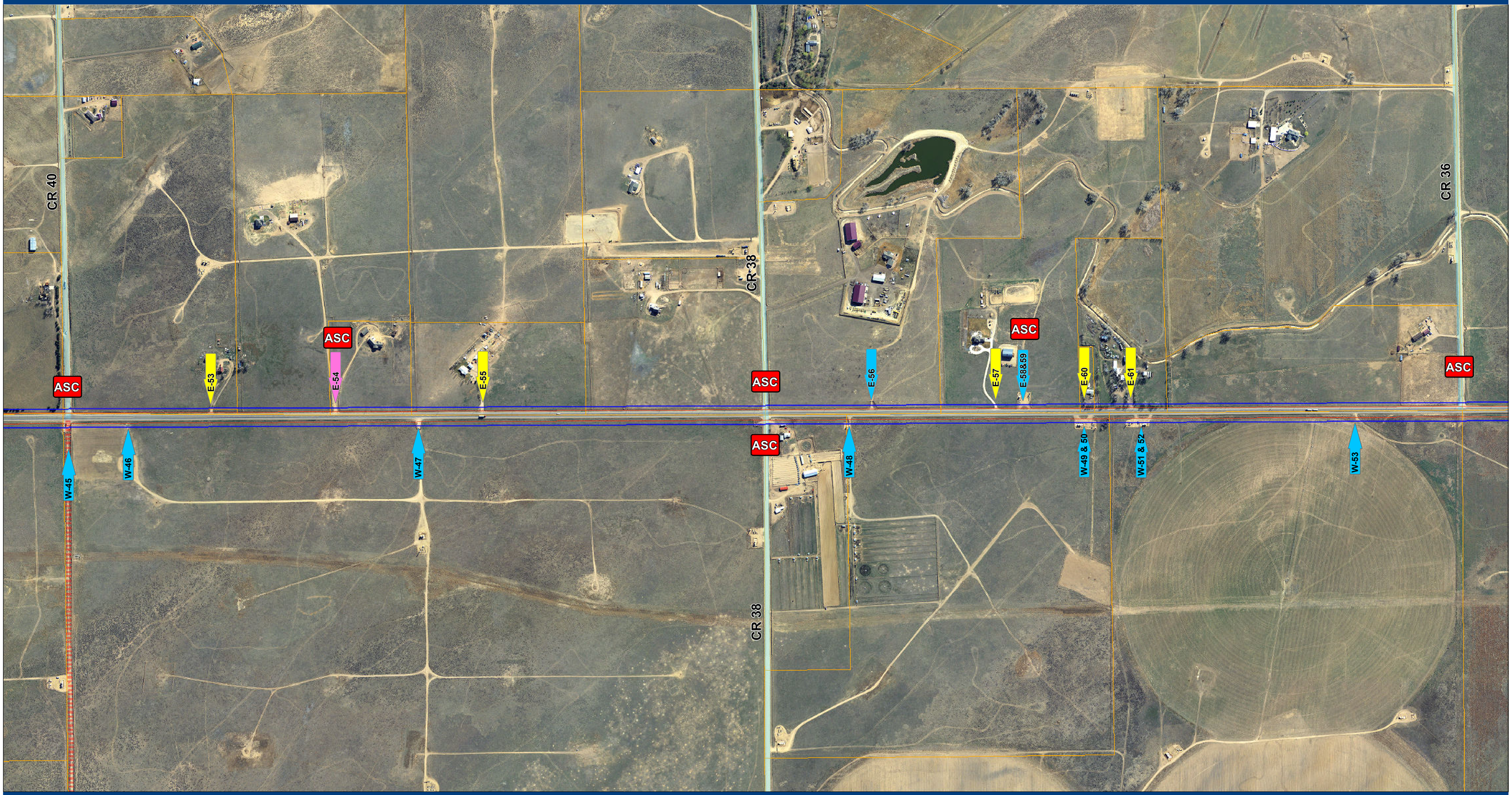
County Roads

80 foot Right of Way

140 foot Right of Way

0 1,550 Feet

WELD COUNTY ROAD 49 ACCESS CONTROL PLAN



County Road 40 to County Road 36

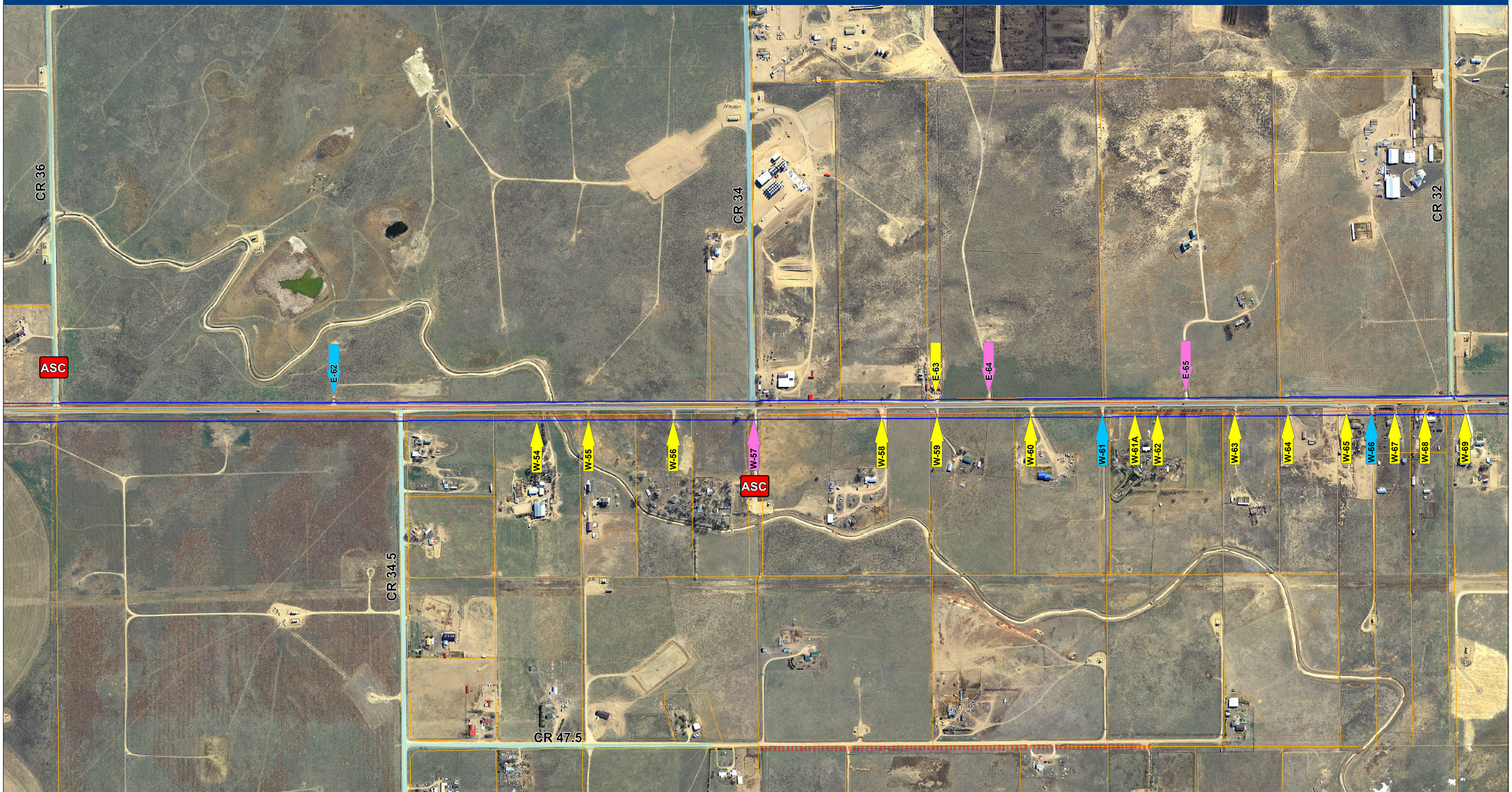
Aerial Plot 5 of 10

WCR 49 Access Control Plan — Keenesburg • Hudson • Kersey — WELD COUNTY

- ASC — Access with Safety Concern
- To Be Closed
- Future Access
- Oil and Gas / Commercial Access
- Agriculture Access
- Residential Access
- Mixed Use Access
- Property Lines
- Land Locked Property
- Private or Other Road
- County Roads
- 80 foot Right of Way
- 140 foot Right of Way

0 — 1,550 Feet

WELD COUNTY ROAD 49 ACCESS CONTROL PLAN



County Road 36 to County Road 32

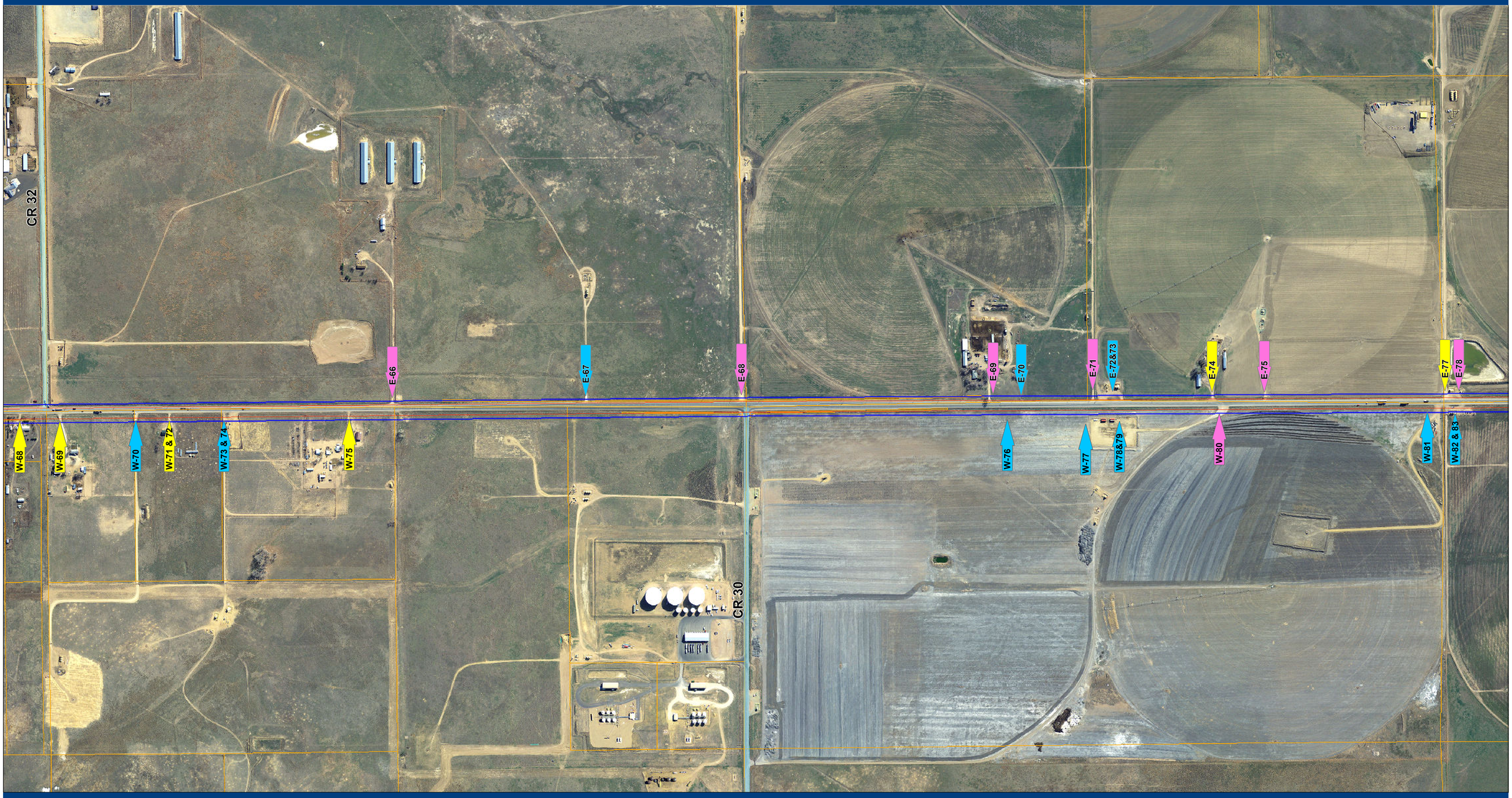
Aerial Plot 6 of 10

WCR 49 Access Control Plan — Kersey • Ravenesburg • Hudson — WELD COUNTY

- ASC — Access with Safety Concern
- To Be Closed
- Future Access
- Oil and Gas / Commercial Access
- Agriculture Access
- Residential Access
- Mixed Use Access
- Property Lines
- Land Locked Property
- Private or Other Road
- County Roads
- 80 foot Right of Way
- 140 foot Right of Way

0 — 1,550 Feet

WELD COUNTY ROAD 49 ACCESS CONTROL PLAN



County Road 30

Aerial Plot 7 of 10

WCR 49 Access Control Plan — Keenesburg • Hudson — WELD COUNTY

ASC Access with Safety Concern

To Be Closed

Future Access

Oil and Gas / Commercial Access

Agriculture Access

Residential Access

Mixed Use Access

Property Lines

Land Locked Property

Private or Other Road

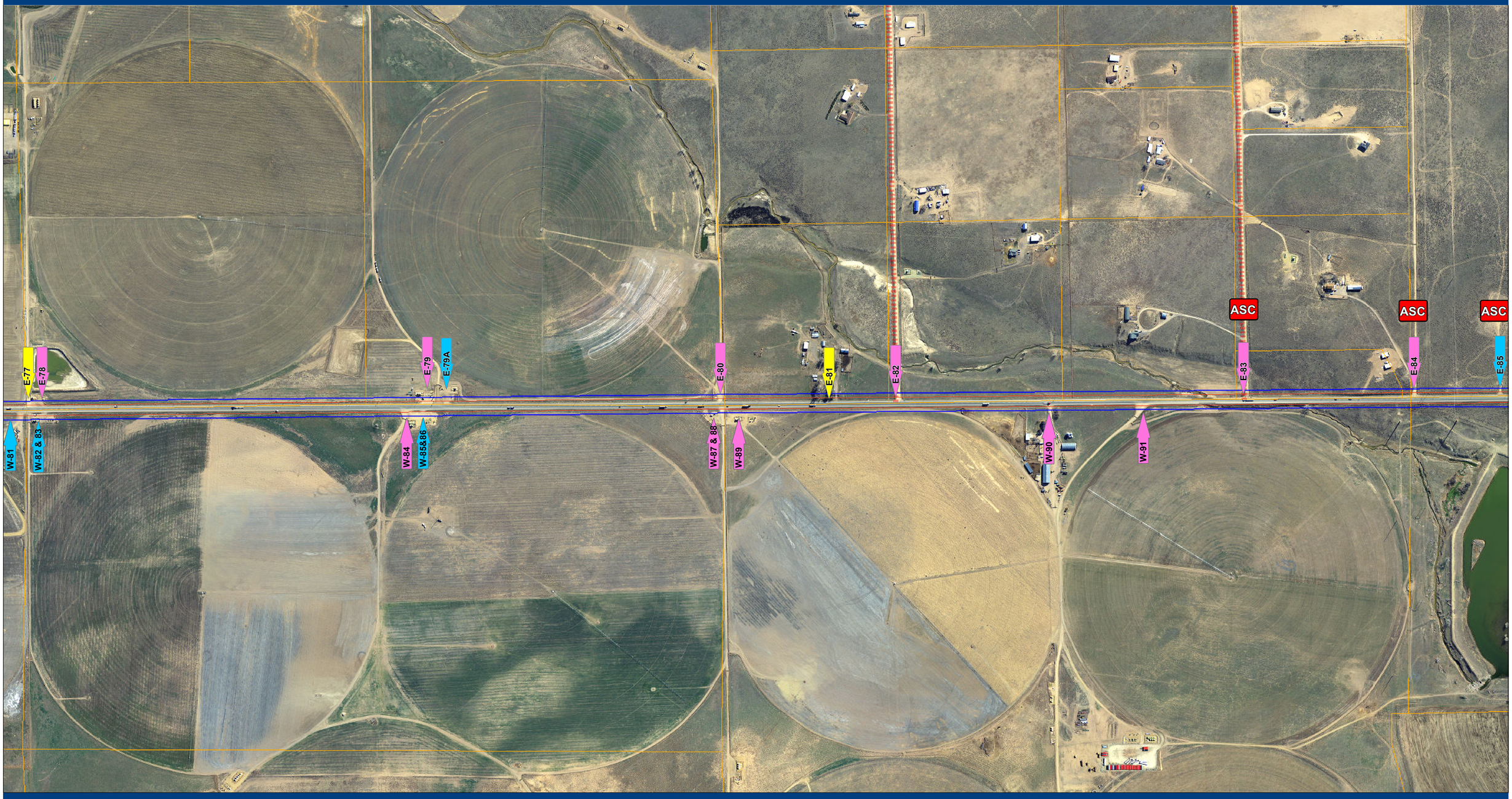
County Roads

80 foot Right of Way

140 foot Right of Way

0 1,550 Feet

WELD COUNTY ROAD 49 ACCESS CONTROL PLAN



County Road 24 3/4

Aerial Plot 8 of 10

ASC Access with Safety Concern

To Be Closed

Future Access

Oil and Gas / Commercial Access

Agriculture Access

Residential Access

Mixed Use Access

Property Lines

Land Locked Property

Private or Other Road

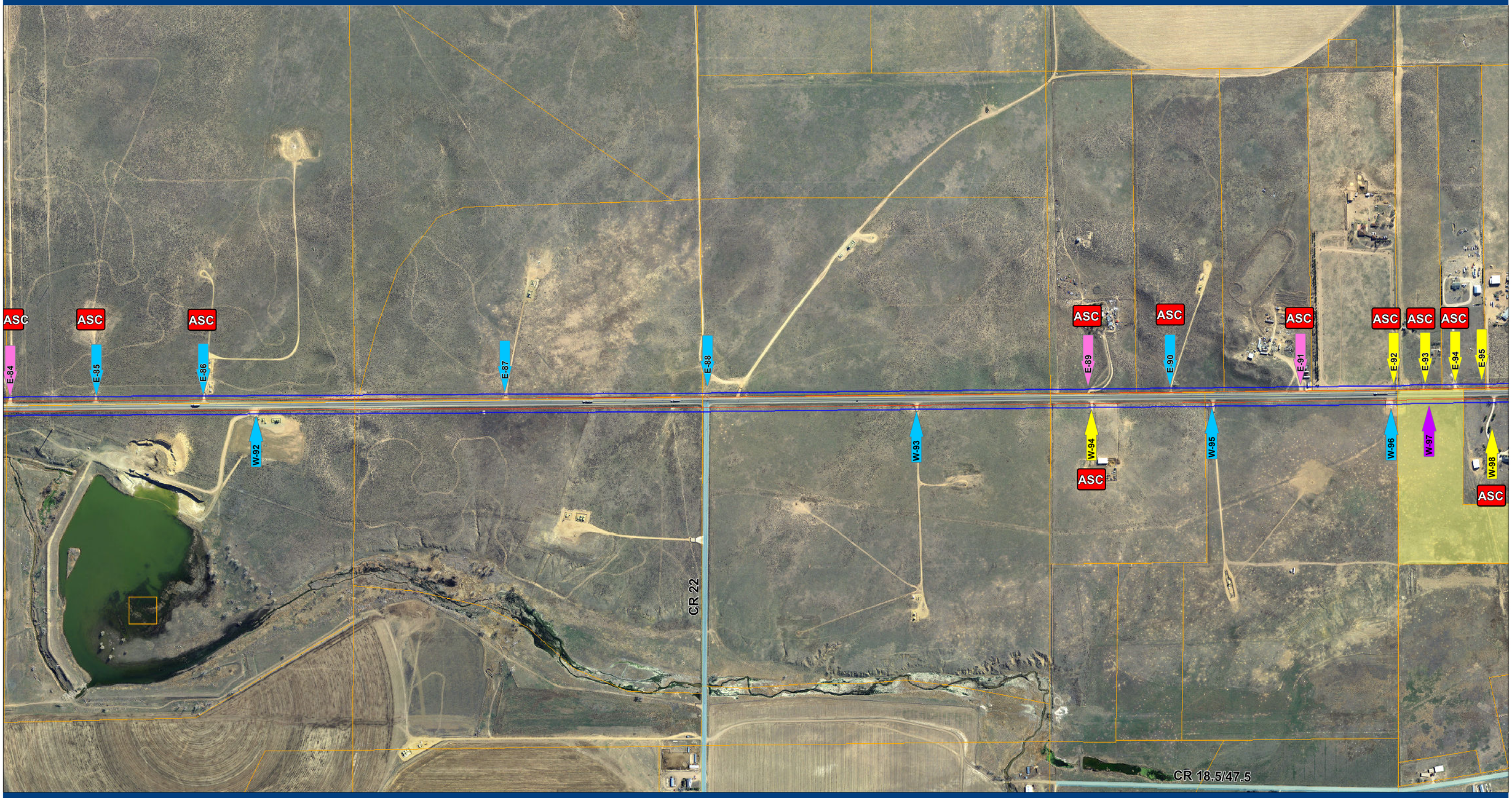
County Roads

80 foot Right of Way

140 foot Right of Way

0 1,550 Feet

WELD COUNTY ROAD 49 ACCESS CONTROL PLAN



County Road 22

Aerial Plot 9 of 10

ASC — Access with Safety Concern

To Be Closed

Future Access

Oil and Gas / Commercial Access

Agriculture Access

Residential Access

Mixed Use Access

Property Lines

Land Locked Property

Private or Other Road

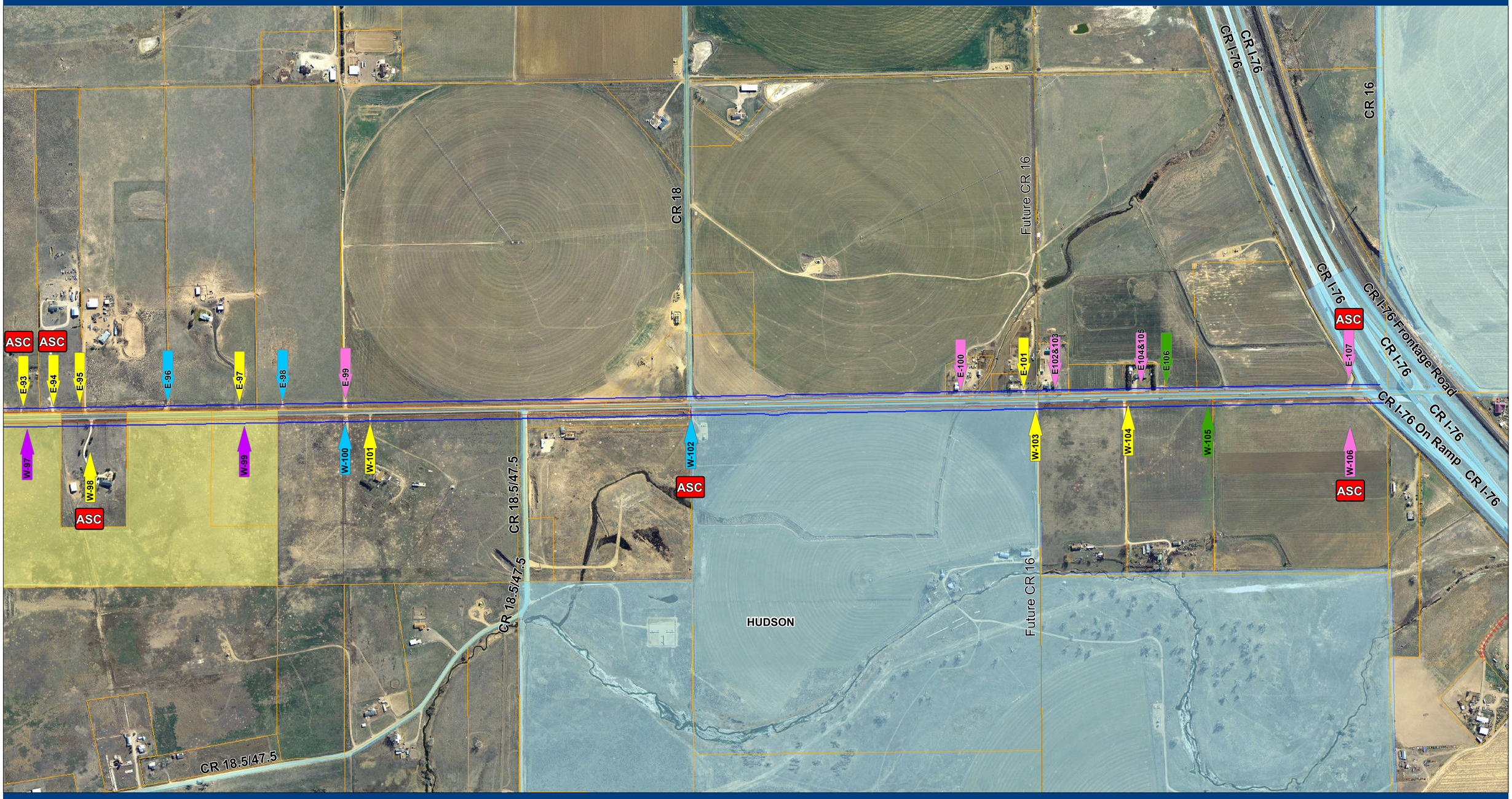
County Roads

80 foot Right of Way

140 foot Right of Way

0 1,550 Feet

WELD COUNTY ROAD 49 ACCESS CONTROL PLAN



County Road 47 1/2 to Interstate 76

Aerial Plot 10 of 10

ASC — Access with Safety Concern

To Be Closed

Future Access

Oil and Gas / Commercial Access

Agriculture Access

Residential Access

Mixed Use Access

Property Lines

Land Locked Property

Private or Other Road

County Roads

80 foot Right of Way

140 foot Right of Way

0 1,550 Feet

VI. PUBLIC INVOLVEMENT

A. Website and Newspaper Articles

Public involvement is a critical element for any planning effort. Therefore, coordinating the public participation process is very important.

Initially, the public outreach effort began with putting general project information on the County's website. Weld County's transportation planning webpage provided basic information about the project purpose, study area, process, and timeline. **Figure 15** below is a screen shot of the transportation planning webpage.

Figure 15: Transportation Planning Webpage

Information was continuously updated on the website throughout the entire project. All handouts and materials provided during public events were kept on-line so those who were unable to attend the meetings could access all the information and provide comments and responses through mail, email, or telephone.

In addition to the website, staff prepared newsletters and newspaper articles to update property owners of the planning effort. Such newsletters were also mailed directly to adjacent property owners along WCR 49 of open house events. The direct mailings were to ensure those residents who may not have access to the internet are afforded the same opportunity to information. These mailings were conducted twice, once for the first set of open houses and second for the introduction to the draft plan.

B. Open Houses

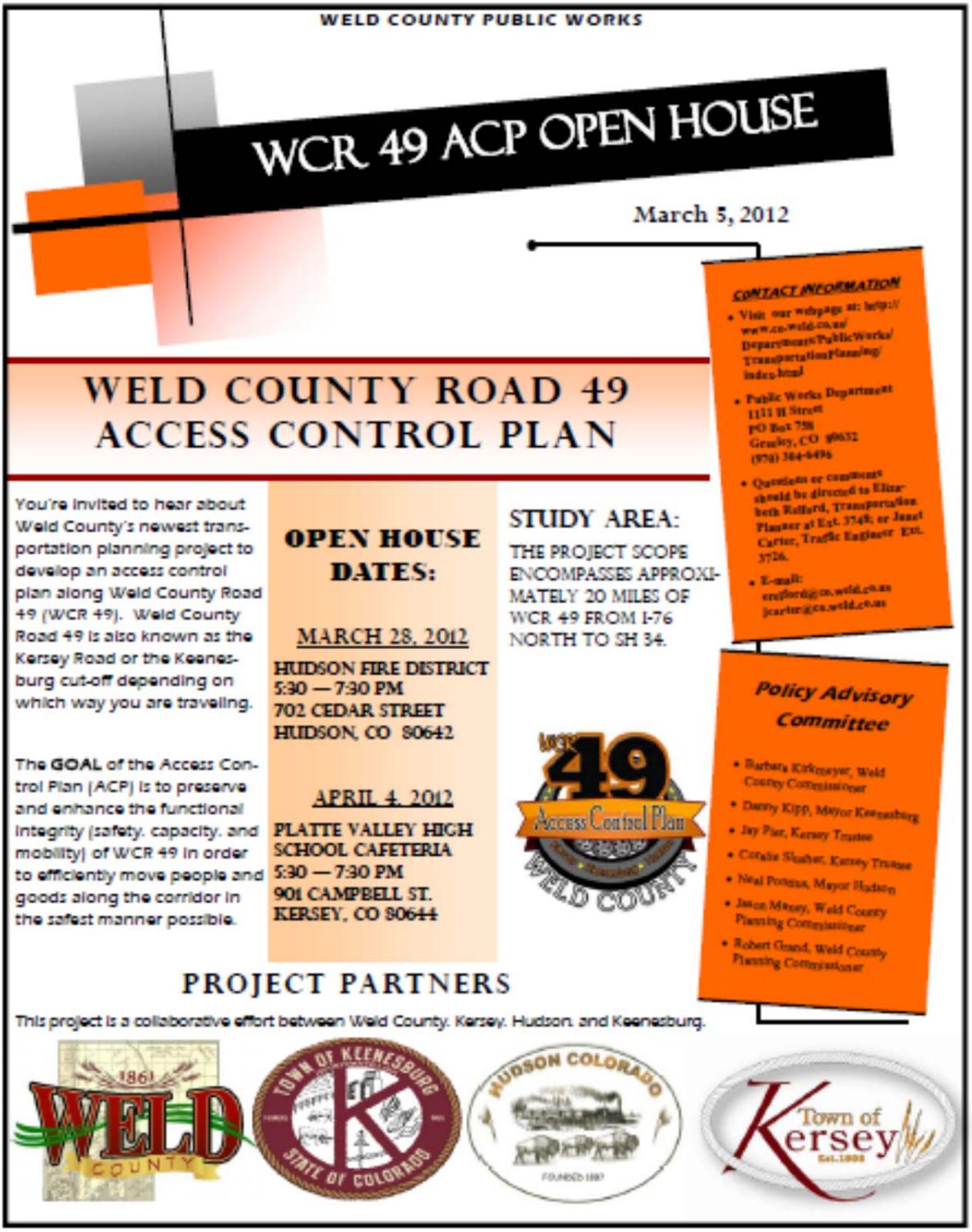
The public open houses were held at key stages during the study process and strategically located on both ends of the corridor. The purpose of the first set of open houses was to introduce the concept of access management to the public and learn how the existing accesses were being used (for example, is the access used for a residence, a farm, oil and gas, or commercial use?). The information from this open house was used in generating the plan, which was then presented at the next open house.

Both the March and April open houses had exhibits showing the access control planning efforts. Representatives from Weld County, Kersey, Hudson and Keenesburg were in attendance to answer questions and to receive public comments, concerns and input.

The first two open houses were held on Wednesday March 28th at the Hudson Fire District and Wednesday April 4th in Kersey at Platte Valley High School. Combined, more than 70 residents attended both open houses.

These open houses were advertised by mailing the newsletter identified in **Figure 16** to all property owners, residents and other interested parties along the corridor. The mailing list was compiled from county assessor records, from driving through the corridor to record physical street addresses and by other interested parties who provided mailing addresses. Additional advertisement occurred on the Weld County web site. **Appendix C** contains examples of the survey questions, invitations and open house questionnaire materials.

Figure 16: Open House Flyer



Once the draft planning document had been developed, the open house public meeting format was used to get feedback on the draft access control plan. For this effort, rather than having multiple open house meetings, a property owner along the corridor volunteered the use of their facility for one large public meeting. This meeting took place on August 28, 2013 at 5:30 p.m. at Big Foot Turf Farm located at 22455 Weld County Road 49.

While the purpose of the meeting was to discuss the Access Control Plan, many residents expressed concerns about safety with the amount truck traffic on Weld County Road 49 and wanted to know when the corridor would be widened.

All the public input was valuable and helped shaped this document.

VII. RECOMMENDATIONS

Policies:

The following principles were established for use in the development of the Access Control Plan and should be used, where applicable, to help determine appropriate modifications to the Access Control Plan in the future:

➔ Traffic Signals

A significant component of an Access Control Plan is the development of a Traffic Signal Plan. This allows for a comprehensive view of the location of existing and future signals in the corridor. The intent of the WCR 49 corridor is to keep the traffic flowing. For that reason Weld County does not show future signals along WCR 49 at this time. However, there are other arterial roadways that intersect with WCR 49. Therefore, in the future, if safety issues arise at these arterial-arterial intersections, signalization may be warranted in accordance with the *Manual on Uniform Traffic Control Devices* (MUTCD). The MUTCD identifies nine signal warrants two or more of the signal warrants must be met prior to recommending the installation of a traffic signal. The potential traffic signal will have to be approved by a majority of the Parties to the intergovernmental agreement prior to the installation of the signal. The nine signal warrants included within the MUTCD are as follows:

Warrant 1, Eight-Hour Vehicular Volume

Warrant 2, Four-Hour Vehicular Volume

Warrant 3, Peak Hour

Warrant 4, Pedestrian Volume

Warrant 5, School Crossing

Warrant 6, Coordinated Signal System

Warrant 7, Crash Experience

Warrant 8, Roadway Network

Warrant 9, Intersection Near a Grade Crossing

Traffic signal spacing can occur anywhere from ½ mile to 1 mile spacing. It is not recommended to have signals closer than one half-mile spacing. The signal spacing may be modified if a safety issue develops or an unforeseen major development occurs.

➔ Future Comprehensive Planning

For the ACP, the year 2035 has been used as the long term planning horizon, which is consistent with Weld County's Transportation Plan. The recommendations of the Access Control Plan are at times based on proposed development likely to occur in the immediate future and on comprehensive plans identifying future development areas and future roadway networks along the corridor. Kersey, Hudson, Keenesburg, and Weld County all have Comprehensive Plans. As stated before, Hudson has annexed one-mile of WCR 49 from I-76 to WCR 18 and Kersey has annexed US 34 past WCR 49 to WCR 47.5. The comprehensive plans were used to predict locations for future development.

Traffic forecasts used for this plan were developed as part of the 2035 Weld County Transportation Plan, and the WCR 49 Parkway project. Weld County's Transportation Plan identified the 2035 average daily traffic volumes forecasted on WCR 49 from I-76 to US 34 ranging from 17,480 at the south end to 11,210 on the north end.

The WCR 49 Parkway project estimates approximately 1,000 additional vehicles per day (vpd) would be added to the existing count of 5,400 vpd on WCR 49 south of US 34 if the extension opened today based on modeling analysis and local traffic patterns. The Weld County traffic count data for WCR 49 south of US 34 suggests an annual growth rate as high as 7.0% per year for the most recent 3-year period and 5.0% for the most recent 10-year period. Therefore, it is reasonable to assume a higher than typical growth rate on this facility in the future. **Figure 17** below shows that if a 7.0% per year growth factor were to continue on WCR 49 through the year 2035 then the traffic volumes would be approximately 30,300 vehicles per day. This assumes a two-lane roadway and no widening occurs.

Figure 17: Traffic Growth Factoring on WCR 49 south of US 34

Growth Rate	2035 Forecasted Traffic Volumes (vpd, 2-way)
1.5%/yr.	9,000
3.0%/yr.	12,600
3.5%/yr.	14,100
4.0%/yr.	15,800
5.0%/yr.	19,700
6.0%/yr.	24,400
7.0%/yr.	30,300

Notes: Historical growth rates on SH-392 = 3.2% to 4.0% per year
Historical growth rates on US-34 = 2.9% per year
Historical growth rates on US-85 = 1.4% per year
Historical growth rates on WCR 49 south of US-34 = 5% per year

As the corridor grows, so will the development demands on the region. Therefore, all the communities agree to coordinate compatible land use development through comprehensive planning to ensure responsible growth occurs adjacent to existing landowners.

➔ School Bus Stops

Part of developing the Access Control Plan was to reach out to other local governments who utilize WCR 49. Two School Districts have bus routes on the WCR 49 corridor. They are RE-3J (Hudson/Keenesburg) and RE-7 (Kersey). As part of the WCR 49 Safety Analysis performed while creating the Access Control Plan; it was determined there were a myriad of bus stops along WCR 49. Therefore, in order to have a better understanding of the bus stop locations, both School Districts allowed Public Works to ride the school bus routes. It was observed that many of these stops are located in areas with limited sight distance or no passing zone locations. This combined with information about numerous school bus close calls with either blow-bys or illegal passing have resulted in potential safety concerns. For that reason, the Policy Advisory Committee and the Weld County Board of County Commissioners are requiring the School Districts to remove all **unsafe** bus stops on WCR 49, which will be reviewed on an annual basis. By shifting the existing school bus stops onto adjacent county roadways, or by promoting the use of private properties and private accesses this objective can be accomplished. The primary safety concern is traffic stopping on WCR 49. Since this plan has been developing, RE-3J has removed all bus stops on the southern end of WCR 49 to alternate locations.

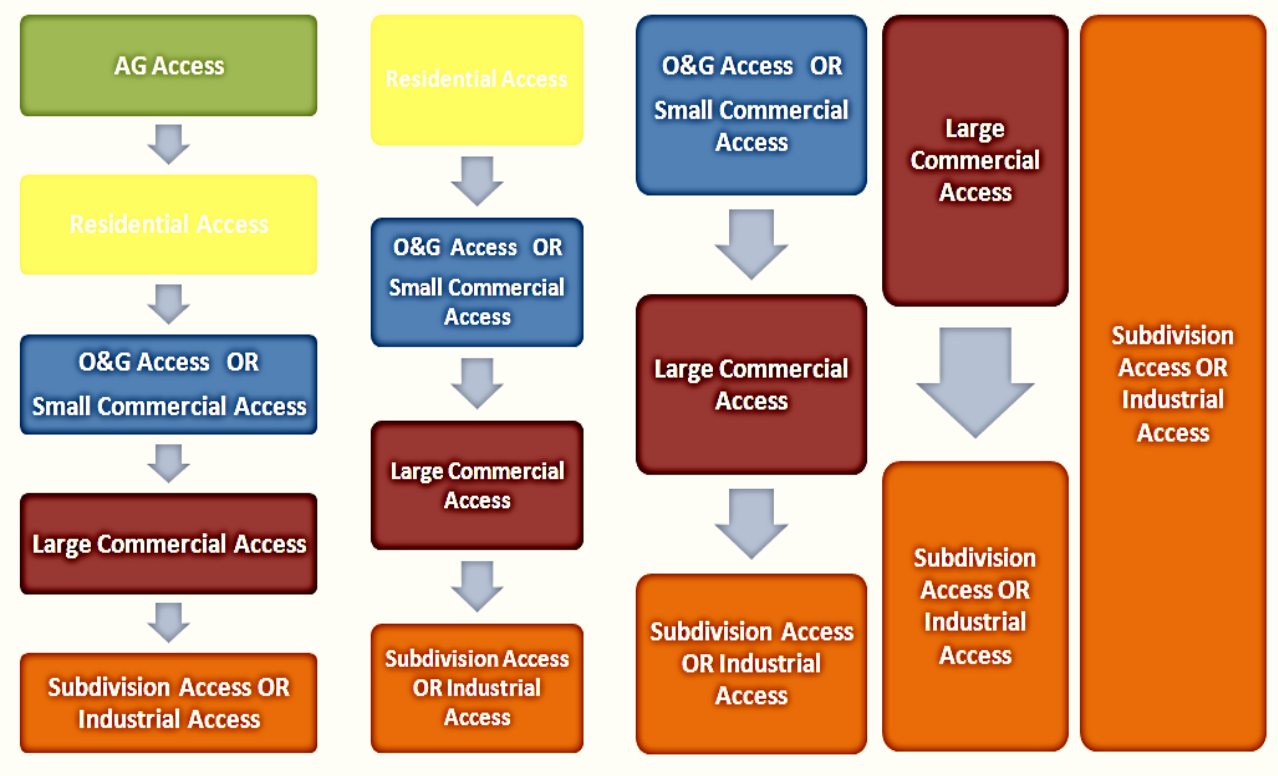
➔ Shared Accesses

Whenever possible and feasible, shared access will be provided to serve two or more adjacent properties. As development occurs along the WCR 49 Corridor, property owners will be encouraged to consolidate existing accesses into shared accesses, whenever feasible. Landlocked parcels, Recorded Exemptions, etc., will be requested to coordinate with neighboring property owners to utilize existing accesses in order to have shared access points.

➔ Access Change of Use

If there is a change in the intensity of use with a property, whether through the development review process or not; a change of use of the existing access is needed. A change in access or property use may include, but is not limited to: change in the amount or type of traffic; change in use or type of business; expansion of existing business; change in zoning; change in property division; and creation of new parcels. In most cases a change of use occurs when there is an upgrade or increase in the volume of traffic utilizing the access point. Weld County utilizes an access hierarchy; **Figure 18** below graphically shows the different change of use scenarios for each type of access use. When an access is upgraded due to a change of use, an access permit is required.

Figure 18: Change of Use Flow Chart



For example, conversion of a farm access to an oil and gas, commercial, or industrial use is considered a change of use and requires a new access permit, which may not or may not be approved for safety reasons or other circumstances.

➔ Access to WCR 49 Corridor

In accordance with the access control plan, no new accesses beyond what is identified on the access control plan maps will be permitted. In order to receive a new access, the property owner shall comply with one of the previously discussed access control techniques. This policy is to ensure all accesses are located in the safest location possible, within the plan recommendations.

➔ Load Limiting WCR 49

In order to accommodate the increased movement of freight throughout the corridor, communities shall not load limit any part of WCR 49 beyond the road's existing structural capability. Oversized, overweight loads have to obtain local agency permits as required.

➔ WCR 49 Corridor Redevelopment

As road construction improvements are made along the corridor, Public Works will work with adjacent property owners to ensure existing or future access locations are reconstructed in the safest location possible.

➔ Road Cut Policy

Public Works shall work with the towns and stakeholders to ensure adequate conduit/casings are identified during the design of road widening improvements. As a result, in order to preserve the investment to the public, Weld County and the Towns will limit the amount of road borings across WCR 49 on a case by case basis.

➔ WCR 49 Corridor IGA

In order to provide for the functional integrity, ongoing maintenance, and development of WCR 49, the communities agree to continue coordinating the development of an intergovernmental agreement to support the opportunities for responsible maintenance and development of multiuse easements/utility corridors to ensure the safety and preservation of WCR 49 now and into the future.

➔ Future Access Control Plans

To ensure safety, access control plan is recommended for all arterial roadways. With the development of the Weld County Parkway and WCR 47 corridor, it is recommended to continue these planning efforts north and develop an access management plan for the both the Parkway and WCR 47 corridor.

VIII. PLAN IMPLEMENTATION

The purpose of this effort was to identify immediate safety concerns and plan for future improvements. As such, these recommendations will be implemented over time as traffic and safety needs arise, funding allows, or there is a change in use through development.

Of the more than 200 access, there are more than 40 access identified as a safety concern (ASC). These accesses are primarily existing county roads, oil & gas loops and some residential accesses. To ensure the access remains safe, Weld County would like to work with these property owners to identify future solutions, reconfigurations, or relocations of each access when the property redevelops or during the widening of WCR 49.

The following criteria have been developed for Accesses with Safety Concerns:

1. Determine if one of the Access Control Techniques in Chapter IV (elimination, movement conversion, relocation, or consolidation) can be applied to the site.
2. Determine if the property can access an alternative road adjacent to the site.
3. Determine if the access can be relocated upon redevelopment of the property.
4. Determine if the access can be relocated upon widening of WCR 49.

If any of these options apply, the Property Owner and County should work together to implement such access modifications to ensure the access meets safety movements.

Future funding for access modifications are not identified at this time. However, there may be public-private partnership resources to help implement this planning effort. Improvements identified will be performed on a case by case basis as project funding becomes available. All improvements will take into consideration natural features, storm drainage, floodplain issues, and other topographical features. The recommended improvements could be funded several ways, but most likely implemented by:

- **Re-Development** – When a property re-develops to a new land use, or when an existing property owner wishes to modify access or the property frontage, the governing agency can require the property owner to implement the Access Control Plan recommendations.

- **Capital Improvement Projects (CIP)** – Larger scale projects could be planned in a five year time-frame and constructed with Capital Improvement Program funds.

- **Grant Funds** – In addition to funds that may be available from the County, monies could also be available through State agencies, such as the Colorado Department of Local Affairs (DOLA), and the Colorado Department of Transportation (CDOT).

In order to ensure implementation of Access Control Plan improvements, it is imperative that Access Control Plan be adopted by each of the governing entities in the corridor, more specifically, Kersey, Hudson, Keenesbug, and Weld County and it be follwed for all local and regional transportation and land use planning. Therefore, it is recommended the Access Control Plan be adopted by each entity by Resolution or Ordinance and enforced through an Intergovernmental Agreement (IGA).

IX. Plan Amendments

Since conditions may change over time, it is important to specify a process for modifying the access control plan. This plan recommends creation of an ACP Advisory Committee comprised of one representative from each of the signatories on the Intergovernmental Agreement (IGA).

Access Control Plan amendment requests will be processed by Weld County to be reviewed by the ACP Advisory Committee. The Community's proposed changes shall be presented within 60 days of submittal, and supported with enginnering solutions. Approval of the plan amendment shall require three quarters (3/4) majority votes to be approved.

It is recommended the Advisory Committee review the Access Control Plan IGA every five years for possible updates. Most importantly, this process would ensure continuing coordination between the corridor agencies.

WCR 49/22 Intersection widening Improvements