

FNSB ROAD CORRIDOR & FUNCTIONAL CLASSIFICATION PLAN

RFP No. 21013

TASK 2: EXISTING CONDITIONS TECHNICAL MEMORANDUM

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Prepared for:

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Existing Conditions Technical Memorandum

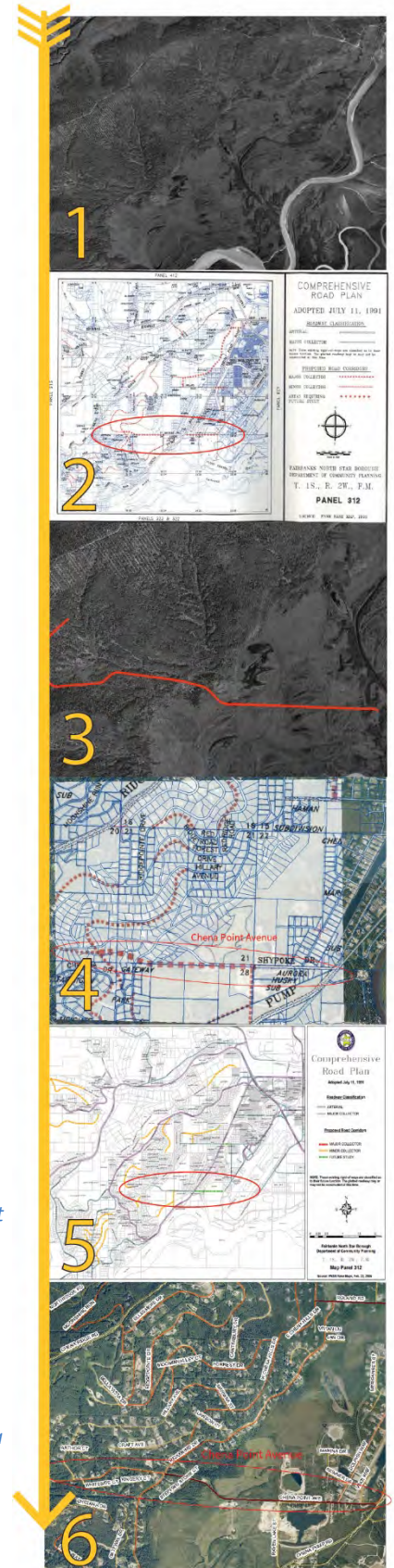
Executive Summary

i. Road Corridor & Functional Classification Plan Overview

The purpose of the FNSB Road Corridor & Functional Classification Plan (Road Plan) is to update the 1991 Comprehensive Road Plan and 2006 Maps to meet the needs of a growing community within the Borough. Since the Road Plan and Maps' last update, significant growth has occurred in multiple areas of the FNSB including in the North Pole area, near Eielson Air Force Base, Ester, Chena Hot Springs Road, and Chena Ridge areas. The current 1991 Roads Plan does not account for this more recent growth in the above-mentioned areas of the FNSB. The update of the 1991 Roads Plan through this project will expand the geographic scope of the plan to account for growth areas across the borough that will impact future road network development.

The intention of this update is to extend the Maps and proposed future road corridors to these new areas of growth, to correct inaccuracies of previously built road corridor locations in the maps, update the Borough's functional classifications based on traffic and usage, inform emergency services route designations through roadway functional classes, and determine the locations and functional classifications of road corridors in areas of current and expected future growth. This will be accomplished through a two-pronged approach: 1) public involvement activities, which includes the establishment of a project steering committee and targeted outreach to gather feedback from the community, regional businesses, and organizations, and 2) a detailed technical analysis performed using GIS tools and LiDAR data. The original 1991 Roads Plan was based on 50-foot United States Geological Service (USGS) quadrangle topographic maps. This project will update the 1991 Roads Plan maps using high-definition LiDAR data collected by the borough. This data was collected in recent years and provides insights into local topographical conditions influencing where future road corridors are most feasible. Additionally, the Road Plan will identify areas of the transportation network where roads have been constructed, but where legal right-of-way (ROW) still needs to be

Figure 1: How a planned corridor gets built through the Comprehensive Road Plan. (1) Western Fairbanks in 1949; (2) Chena Point Ave. is identified in 1993 Roads Plan maps; (3) Planned location of Chena Point Ave. shown on 1949 aerial; (4) Overlay of 1993 Road Plan maps on 2012 aerial. ROW is dedicated and road constructed incrementally as land subdivides; (5) Chena Point Ave shown as constructed in the Roads Plan 2006 maps update; (6) 2012 aerial shows constructed Chena Point Ave. Source: FNSB Community Planning & PDC Engineers.



acquired by the FNSB for public roads. The plan will serve as a tool to facilitate the acquisition of legal ROW for constructed and future planned road corridors throughout the borough.

a. What does the Road Plan *do*, and *not do*?

The Road Plan does...

- Provide guidance and plan for future road corridors and land access while facilitating the securing of legal right-of-way (ROW) and physical road development through the land subdivision process.
- Assign a purpose for a future road corridor through a functional classification that is tied to the FNSB's subdivision development process.
- Encourage and support the FNSB and developers working together to develop a road system that protects the health, safety, and well-being of the community.

The Road Plan does not...

- Allow the FNSB to come in and 'take' private land.
- Allow the FNSB to force roads through private property. Road corridor development is developer/owner initiated at the time of land subdivision.
- Preclude other road corridor configuration options that meet the same needs for access, mobility, and protection of community health, safety, and welfare as those designated in the Plan.

ii. Existing Conditions Report Purpose

This document provides a high-level summary of the planning environment, existing conditions, and existing corridors and functional classifications of the Fairbanks North Star Borough road network. This report lays out the planning environment through a literature review of existing and ongoing transportation-related plans, relevant policies, statutes, and regulations, and functional classifications within the study area, including those of the FNSB Code *Title 17 – Subdivisions*, State of Alaska Department of Transportation, and local municipalities, the City of North Pole and City of Fairbanks. This report also includes submittal of an updated *draft* Map Set visualizing new development on the FNSB road network since the Comprehensive Road Plan's last update.

iii. Literature Review Summary

The Literature Review gives a brief synopsis of seventeen Existing Plans and ongoing planning efforts, four key Policies, Statutes, and Regulations, and four Functional Classification Systems relevant to this update of the FNSB Comprehensive Road Plan.

a. Policies, Statutes, and Regulations Summary

Five primary Policies, Statutes, and Regulations with relevance to the Road Plan were reviewed in the preparation of this technical memorandum. These include the following:

1. Alaska State Statutes *Title 29 – Municipal Government*
 - Chapter 35. Municipal Powers and Duties
 - Chapter 40. Planning, Platting, and Land Use Regulation
2. FNSB Code *Title 17 – Subdivisions*
 - Chapter 17.08 General Provisions
 - Chapter 17.56. Design and Public Improvement Requirements
3. FAST Planning Transportation Improvement Program (TIP), 2019-2023
4. FAST Planning Complete Streets Policy
5. FAST Planning Green Streets Policy

A discussion of key takeaways from these policy documents is included in the Literature Review: Policies, Statutes, and Regulations section and summarized below.

Discussion of Relevant Policies

Several Alaska State Statutes are immediately relevant to the Road Plan effort, since they give the FNSB as a second-class borough the power to conduct planning, platting, and land use regulation authority on an areawide basis. AS Title 29 Chapters 35 and 40 are reviewed with a focus on key sections: AS 29.35.210. Second class borough powers, AS 29.40.010. Planning, platting, and land use regulation, AS 29.40.030. Comprehensive Plan, AS 29.40.040 Land use regulation, AS 29.40.070. Platting regulation and AS 29.40.080. Platting authority. These State statutes are the legal basis upon which the FNSB is granted the legal authority by the state to develop and implement a comprehensive roads plan, subdivide land, and work with developers to implement a road network.

Of the five policies reviewed in this memorandum, FNSB Code *Title 17 – Subdivisions* is the most directly relevant to the FNSB Road Plan because as a second-class borough, the FNSB acquires its public road network through its land use regulation powers in the subdivision and exactions process. The purpose of Title 17 includes providing for adequate and efficient street and road systems and preventing congestion on streets while promoting traffic safety (FNSBC 17.08.010(A)). The FNSB's functional classification descriptions are housed within Title 17.56.070(A-H), and 17.56.110(A) is the mechanism through which the planned road corridors and functional classifications laid out in the Roads Plan are implemented when land is subdivided. The City of North Pole also bases its functional classification system off of Title 17, with some minor changes.

FAST Planning's Transportation Improvement Program (TIP), 2019-2023 is an important policy document to consider as it offers the most up-to-date status information about all planned and likely to be funded transportation projects in the Metropolitan Planning Area (MPA), the urbanized core of the borough.

FAST Planning's Complete Streets and Green Streets Policies are important high-level guiding documents that establish the MPO's commitment to develop a transportation network accessible to users of all ages, modes, and abilities, as well as one that has minimal impact on the surrounding environment through the application of green storm water infrastructure (GSI) initiatives.

Each of these policies has a varying degree of relevance to the current effort, as indicated above, but nonetheless all contribute important information to the FNSB Road Plan. For more in-depth review of these policies, see the Literature Review: Policies, Statutes, and Regulations section of this report.

b. Functional Classifications Systems Summary

Functional classification is the “process by which streets and highways are grouped into classes, or systems, according to the character of service they are intended to provide” (2016 AKDOT&PF Functional Classification Update). The purpose of functional classification, generally, is to strike a balance between mobility, or the movement of people and goods through various modes on the transportation system, and land access to subdivided properties. For example, some common functional classification categories for roads in urban areas are arterials, collectors, and local roads. Arterials feature the highest mobility and the lowest degree of land access, while local roads have lower mobility with a higher degree of land access. Collectors fall somewhere in between. Functional classifications serve to define the role that a specific road or street plays in serving the flow of trips through an entire network. The functional class is tied to access, design standards, safety, traffic counts, speed limits and funding sources.

Four road functional classification systems are reviewed and discussed in this memo as relevant to the ongoing Road Plan update. These include the following:

1. 2010 State Functional Classification Update, Alaska Department of Transportation & Public Facilities
2. Fairbanks North Star Borough
3. City of North Pole
4. City of Fairbanks

A discussion of the relationship between the State, borough, and municipal functional classification systems is summarized below and examined in more detail in the Literature Review: Functional Classification Systems section.

Discussion of Relationship between Functional Classification Systems

Functional classifications serve to define the role that a specific road or street plays in serving the flow of trips through an entire network. The functional class is tied to access, design standards, safety, traffic counts, speed limits and funding sources. The two primary systems used in the FNSB are the Alaska DOT&PF Functional Classifications and the FNSB definitions codified in Title 17. Table 5 compares the two system definitions. The FNSB applies functional classifications as defined in Title 17 to road corridors on a case-by-case basis at the time of subdivision of adjacent lands or other increase in development activity.

The casual observer might assume that the Alaska DOT&PF and FNSB functional classification systems are conflicting; however, a closer analysis reveals the systems are designed to focus on the specific roadways and needs within each jurisdiction’s control. The DOT&PF classifications follow the guidelines established by the U.S. Department of Transportation’s Federal Highway Administration (U.S. DOT FHWA) and are utilized by DOT&PF and FAST Planning to guide project planning and design of interstates, arterials, and collector roads. The FNSB definitions correspond with DOT&PF but provide greater detail in the breakdown of local roads that serve subdivisions, rural populations, and

local businesses. This allows the local governments and planning agencies greater latitude in defining standards for subdivision development and to address local priorities. The FNSB functional classifications in Title 17 serve the primary purpose of guiding local road development through the FNSB's land subdivision process. The classifications also serve the important purpose of managing direct lot access to borough roads, which protects the safety and efficiency of the road system.

Since the Alaska DOT&PF manages many roads within the FNSB's boundary, the FNSB as Platting authority (AS 29.40.080) must use its platting regulation powers (AS 29.40.070) to manage access onto both state and borough roads. FNSBC 17.56.020. Legal Access subsection A requires that all subdivisions have legal access originating from a state-maintained roadway available for year-round public use to the boundary of the subdivision. The planned functional classifications laid out in the Road Plan and applied through the subdivision process are intended to limit access to State-maintained and higher-volume roads. This is accomplished through FNSBC 17.56.010(F), which prohibits direct lot access onto arterials and major collectors, except in cases where topography offers no reasonable alternative. Under these statutes, the FNSB holds the platting authority and thus must coordinate with the State DOT&PF to ensure that access is managed in a way that protects the health, safety, and welfare of the community.

Access management techniques such as limiting direct lot (driveway) access onto major collector and arterial roads serve the dual purpose of 1) preserving roadway capacity and speed and 2) improving safety. Alternatively, if access is not appropriately managed, road capacity, speed, and safety are negatively impacted. The Transportation Research Board's National Cooperative Highway Research Program (NCHRP) Report 420: Impacts of Access Management Techniques, illustrates this point. In an analysis that considered 240 segments of road across eight states with more than 37,500 total crashes, the study found that each additional access point per mile of road increased the crash rate by four percent. To put this into perspective, a road segment with 60 access points per mile would likely have an accident rate three times that of a similar segment with 10 access points per mile. This research underscores the importance of access management as implemented through FNSBC Title 17 and the Road Plan to preserving the capacity and safety of roads in the FNSB.

Planning document review indicates that the Cities of North Pole and Fairbanks, the FNSB, FAST Planning, and DOT&PF work collaboratively on planning and development in their overlapping jurisdictions. Updating the 1991 Comprehensive Road Plan provides an opportunity to review the FNSB road classifications and definitions to determine if they still align with the unique characteristics and future vision for the area.

c. Existing Plans Summary

The seventeen transportation-related plans reviewed to provide a contextual foundation to the current planning effort span three decades from 1991 to 2021, including several FNSB and FAST Planning plans with ongoing updates. Reviewed plans summarized in the Literature Review: Existing Plans section of this technical memorandum include the following:

1. 1991 FNSB Comprehensive Road Plan
2. 2005 FNSB Regional Comprehensive Plan
3. 2006 FNSB Joint Land Use Study

4. 2006 FNSB Comprehensive Recreational Trails Plan (update ongoing)
5. 2010 City of North Pole Land Use Plan
6. 2013 FNSB Land Suitability Analysis (update ongoing)
7. 2016 City of North Pole Strategic Plan
8. 2018 Alaska Strategic Highway Safety Plan
9. 2018 FMATS Metropolitan Transportation Plan, *Envision 2045*
10. 2018 FNSB Eielson Air Force Base Regional Growth Plan
11. 2019 Salcha-Badger Road Area Plan
12. 2019 Fairbanks & North Pole Storm Water Management Plan
13. 2019 FMATS Freight Mobility Plan
14. 2019 FAST Planning Green Streets Plan
15. 2020 FNSB Storm Water Management Plan
16. 2021 FAST Planning Non-Motorized Transportation Plan Update (*draft*)
17. 2021 FAST Planning Fairbanks Road/Rail Crossing Reduction/Realignment Plan (ongoing)
18. 2021 FAST Planning Road Service Area Expansion Plan (ongoing)

For each plan, a brief synopsis is given, followed by an explanation of the plan’s relevance to the Road Plan, and a discussion of key points of convergence and/or conflicts between plans. A summary of the literature review is also provided at the end of this Executive Summary as Tables 1-3. Key takeaways from the review of existing plans are included in the following section, below.

Discussion of Reviewed Plans

The literature review of recent plans informs the Road Plan update process by highlighting individual, community, or area concerns, visions for future development and desire for multi-modal access. Development of non-motorized transportation corridors feature prominently in several recent documents. Traffic safety recommendations, updated road design standards, and policies detailed in these plans provide additional information to assist the planning team in making meaningful recommendations.

The Fairbanks North Star Borough has experienced significant growth over the years since the adoption of the 1991 Comprehensive Road Plan. During the 1990s, the FNSB experienced slow but steady net population growth from 77,720 in 1990 to 82,840 in 2000, a 6.6% increase over the decade (U.S. Census Bureau). This growth accelerated during the following decade from 2000 to 2010, with a 17.8% population increase from 82,840 in 2000 to 97,581 in 2010 (U.S. Census Bureau). Much of this growth was due to employment expansions in several of the interior region’s industries including large-scale military and institutional construction projects, mining, retail, and services. In a 2010 article, Forbes identified the Fairbanks metropolitan area as the fastest growing “small town” (<100,000 people) in American between 2006 and 2009, with a growth rate of 13.8% over the period. During this period, the Fairbanks metro area had a median family income of \$87,239 and a below-average unemployment rate of 6.5% in 2009, when the national unemployment rate was 9.2% (Forbes 2010). Between 2010 and 2015, the borough experienced limited population growth, expanding total population from 98,264 to 99,636 (U.S. Census Bureau).

Population increases and traffic flows are being influenced in unexpected ways by the 2016 announcement of the F-35 Bed down at Eielson Air Force Base. The 2018 FNSB Eielson Air Force Base Regional Growth Plan predicted over 3,300 new residents, locating primarily in the North Pole/Badger Road/Salcha area. Restrictions imposed by the COVID-19 pandemic are reported to have slowed the influx of new personnel and residents anticipated in earlier studies. Review of actual residential building and subdivision development will help verify and/or revise the areas of anticipated growth and increased traffic. Traffic counts are currently impacted by work-from-home restrictions and school closures. Considering the impacts of these anomalies will be a necessary part of the update process.

iv. Literature Review Summary Tables

Table 1: Literature Review Summary - Plans

Plans			
Document Title	Owner and/or Collaborators	Last Update	Key Takeaways
1991 FNSB Comprehensive Road Plan	FNSB	2006	Being updated through the current planning effort. As-built road corridor locations need correcting with LiDAR data. Map expansion and road functional classification update needed for FNSB areas of growth.
FNSB Regional Comprehensive Plan	FNSB	2005	The Road Corridors & Functional Classifications Plan is a component of the FNSB Regional Comprehensive Plan and will serve as an important update to this guiding document for the region.
FNSB Joint Land Use Study	FNSB, US Air Force, US Army	2006	Identifies key transportation and land-use-related issues near Fort Wainwright and Eielson Air Force Base to consider in the plan.
2006 FNSB Comprehensive Recreational Trails Plan	FNSB	Ongoing (2021)	Important for coordinating trail and road development and minimizing conflicts between these two modes.
2010 City of North Pole Land Use Plan	City of North Pole, FNSB	2010	Provides a land use framework, transportation facilities, and non-motorized facility maps that have implications for future road corridors. Touches on safe road/trail/path crossings and railroad realignment. City functional classes are based on FNSB Title 17 standards but are not identical.
2013 FNSB Land Suitability Analysis	FNSB	Ongoing (2021)	Informs land suitability for development based on natural landscape factors. Can inform suitability of land for future road corridors.
2016 City of North Pole Strategic Plan	City of North Pole, FNSB	2016	Provides direct recommendations about new road corridors and rail realignments that would benefit the City of North Pole and surrounding areas.
2018 Alaska Strategic Highway Safety Plan	Alaska DOT&PF	2018	Underscores a safety focus in road corridor design and functional classification assignment. Quantifies the statewide safety improvements due to road/rail crossing reductions and grade separations.

Plans, continued.			
Document Title	Owner and/or Collaborators	Last Update	Key Takeaways
2018 FMATS Metropolitan Transportation Plan, <i>Envision 2045</i>	FAST Planning (formerly FMATS)	2018	Provides detailed information on existing conditions and near-, mid-, and long-range projects for all transportation modes in the urbanized area. Serves as a step in the process for projects receiving federal transportation funds.
2018 FNSB Eielson Air Force Base Regional Growth Plan	FNSB	2018	Offers detailed growth projections and transportation network recommendations for an area of the FNSB where road corridor expansion is expected in the near-term. A key area for expansion of the Comprehensive Road Plan Maps.
2019 Salcha-Badger Road Area Plan	FNSB	2019	Builds upon the 2018 FNSB Eielson Air Force Base Regional Growth Plan to provide more detailed analysis, goals, and objectives for a rapidly growing corridor near Eielson AFB.
2019 Fairbanks & North Pole Storm Water Management Plan	City of Fairbanks, City of North Pole, UAF, Alaska DOT&PF – Northern Region	2019	Underscores the importance of local hydrology and storm water management considerations for any new municipal or borough developments, including road corridors. Siting decision processes for new road corridors should take drainage conditions and identified flood zones into account.
2019 FMATS Freight Mobility Plan	FAST Planning (formerly FMATS)	2019	Provides analysis and recommendations for improved freight mobility in the MPA. Recommends officially designating several categories of freight routes with associated freight design and construction standards.
FAST Planning Green Streets Plan	FAST Planning	2019	Outlines key considerations for green storm water infrastructure for streets in the Fairbanks MPA. Identifies potential project sites and provides illustrative renderings of typical sections for proposed projects.

Plans, continued.			
Document Title	Owner and/or Collaborators	Last Update	Key Takeaways
2020 FNSB Storm Water Management Plan	FNSB	2020	Underscores the importance of local hydrology and storm water management considerations for any new municipal or borough developments, including road corridors. Siting decision processes for new road corridors should take drainage conditions and identified flood zones into account.
2021 FAST Planning Non-motorized Transportation Plan Update (DRAFT)	FAST Planning	Ongoing (2021)	Develops a vision, goals, and project priorities for non-motorized (bike/ped) transportation projects and improvements in the MPA.
2021 FAST Planning Fairbanks Road/Rail Crossing Reduction/Realignment Plan	FAST Planning	Ongoing (2021)	Key planning document for coordination of road and rail corridor development and realignment. Underscores the need to minimize at-grade road and rail conflicts in the MPA.
FAST Planning Road Service Area Expansion Plan	FAST Planning	Ongoing (2021)	An updated Road Standards Manual defining standards for each functional classification is a deliverable of this project.

Table 2: Literature Review Summary - Policies, Statutes, and Regulations

Policies, Statutes, and Regulations			
Document Title	Owner and/or Collaborators	Last Update	Key Takeaways
FNSB Code, Title 17 – Subdivisions	FNSB	2021	Title 17 Section 56.070 defines the Road Functional Classifications of the FNSB.
Alaska State Statutes, Title 29 – Municipal Government	State of Alaska	2021	Defines the powers and requirements of local governments in Alaska, including second-class boroughs like the FNSB. Defines comprehensive plan requirements and borough platting powers.
2019-2023 FAST Planning Transportation Improvement Program (TIP)	FAST Planning	2020	Fiscally constrained 4-year outlook for transportation projects of all modes likely to be funded within the MPA in the near-term.
FAST Planning Complete Streets Policy	FAST Planning	2015	A high-level policy document stating the MPO’s commitment to supporting the development of a multi-modal transportation network accessible to users of all ages, abilities, and modes.
FAST Planning Green Streets Policy	FAST Planning	2016	A high-level policy document stating the MPO’s commitment to the concept of Green Streets for projects within the MPA, including best practices for storm water management, native vegetation, and environmental site design features to protect the quality of local water courses.

Table 3: Literature Review Summary - Functional Classification Systems

Functional Classification Systems			
Document Title	Owner and/or Collaborators	Last Update	Key Takeaways
2010 State Functional Classification Update	State of Alaska DOT&PF	2016	Based on U.S. DOT FHWA guidelines. Updated every 10 years with the U.S. Census. Next update set for 2022.
Fairbanks North Star Borough	FNSB	2006	Contained within FNSB Code Title 17.56.070. Eight functional classes: Pioneer access roads, Alleys, Local road 1, Local road 2, Minor collector, Major collector, Frontage road, and Arterial road. Coordination with State and municipalities through the MPO.
City of North Pole	City of North Pole	unknown	Contained within Design Guidelines for Streets and Drainage document. Based on FNSB functional classifications but only has six categories: Local road, Minor collector, Major collector, Arterial, Frontage Road, and Alley. No Pioneer Access roads within city limits.
City of Fairbanks	City of Fairbanks	N/A	Refers to State of Alaska adopted design standards and publications identified in the Alaska Highway Preconstruction Manual, including the AASHTO Green Book for road classification, design, and construction. Does not codify road functional classifications.

v. Road Network Existing Conditions Summary

Draft updated Map Sets of the Comprehensive Road Plan Official Maps are included as Appendices A-C with the submittal of this Technical Memorandum. Appendix A is the Comprehensive Road Plan Map Key, showing the study area of the 1991 Road Plan by Township. Appendix B is the updated Functional Classifications Map Set. Appendix C is the Existing Conditions Map set, developed through GIS analysis that categorizes roads in the existing study area into four categories based on the status of being a planned corridor, right-of-way dedication, and physical road construction.

The existing conditions mapping was conducted with ArcGIS 10.8.1 utilizing the following FNSB GIS data. Roads within the existing 1991 Road Plan study area were categorized as follows:

- A. Planned roads with dedicated ROW but no constructed road
- B. Planned roads with constructed roads but no dedicated ROW
- C. Planned roads without dedicated ROW or a constructed road
- D. Planned roads with dedicated ROW and a constructed road¹

Based on the categories defined above in the Methods section, within the existing study area of the 1991 Road Plan, there are currently:

- A. 4.1 miles of planned roads with dedicated ROW but no physical road constructed.
- B. 29.3 miles of planned roads with physically constructed roads, but no dedicated ROW.
- C. Approximately 150 miles of planned roads without dedicated ROW or a physically constructed road.²
- D. 21.1 miles of planned roads with dedicated ROW *and* a physically constructed road; this is the mileage that can be considered ‘completed since 1991’.

In the ongoing update process to the 1991 Road Plan, the study area of the Road Plan may be changed, resulting in roads being retained, added, or removed from the plan. The planning team and borough Staff will work closely to determine which areas of growth may warrant expansion of the Road Plan study area, and if there are any situations where an area or corridor should be removed from the Plan. Public input from the Road Plan Steering Committee and public involvement events will also inform this analysis. Justification for the decision to add or remove roads or areas from the study area and plan will be documented throughout the planning process.

¹ Category D roads can be considered fully developed (or completed) since the 1991 plan.

² This number will be updated through the current Road Plan process.

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List of Abbreviations

AASHTO	American Association of State Highway and Transportation Officials
AFB	Air Force Base
CMAQ	Congestion Mitigation & Air Quality
DOT&PF	Alaska Department of Transportation and Public Facilities
FAST Planning	Fairbanks Area Surface Transportation Planning (Replaced FMATS in 2019)
FMATS	Fairbanks Metropolitan Area Transportation System (Replaced by FAST in 2019)
FNSB	Fairbanks North Star Borough
FNSBC	Fairbanks North Star Borough Code
GIS	Geographic Information Systems
JLUS	Joint Land Use Study
LiDAR	Light Detection and Ranging
MPA	Metropolitan Planning Area
MPO	Metropolitan Planning Organization
MS4	Municipal Separate Storm Sewer System
MTP	Metropolitan Transportation Plan
NHS	National Highway System
NPDES	National Pollutant Discharge Elimination System
ORV	Off-road vehicle
RC&FCP	Road Corridor and Functional Classification Plan
RGP	Regional Growth Plan
RSA	Road Service Area
SHSP	Strategic Highway Safety Plan
STP	Surface Transportation Program
TIP	Transportation Improvement Program
UAF	University of Alaska - Fairbanks
US DOT FHWA	Federal Highways Administration, U.S. Department of Transportation
US EPA	United States Environmental Protection Agency

List of Appendices

Appendix A: Comprehensive Road Plan Map Key – Existing study area.

Appendix B: Existing Functional Classifications Map Set

Appendix C: Road Network Existing Conditions Map Set

I. Introduction

The purpose of the FNSB Road Corridor and Functional Classification Plan (Road Plan) is to update the 1991 Comprehensive Road Plan and 2006 Maps to meet the needs of a growing community within the Borough. Since the Road Plan and Maps' last update, significant population growth and development has occurred in multiple areas of the FNSB including in the North Pole Area, near Eielson Air Force Base, Ester, Chena Hot Springs Road, and Chena Ridge areas.

The Fairbanks North Star Borough has experienced significant growth over the years since the adoption of the 1991 Comprehensive Road Plan. During the 1990s, the FNSB experienced slow but steady net population growth from 77,720 in 1990 to 82,840 in 2000, a 6.6% increase over the decade (U.S. Census Bureau). This growth accelerated during the following decade from 2000 to 2010, with a 17.8% population increase from 82,840 in 2000 to 97,581 in 2010 (U.S. Census Bureau). Much of this growth was due to employment expansions in several of the interior region's industries including large-scale military and institutional construction projects, mining, retail, and services.

In a 2010 article, Forbes identified the Fairbanks metropolitan area as the fastest growing "small town" (<100,000 people) in America between 2006 and 2009, with a growth rate of 13.8% over the period. In 2009, the Fairbanks metro area had a median family income of \$87,239 and a below-average unemployment rate of 6.5%, while the national unemployment rate was 9.2% (Forbes 2010). Between 2010 and 2015, the borough experienced limited population growth, expanding total population from 98,264 to 99,636 (U.S. Census Bureau).

Population increases and traffic flows are being influenced in unexpected ways by the 2016 announcement of the F-35 bed down at Eielson Air Force Base. The 2018 FNSB Eielson Air Force Base Regional Growth Plan predicted over 3,300 new residents, locating primarily in the North Pole/Badger Road/Salcha area. Restrictions imposed by the COVID-19 pandemic are reported to have slowed the influx of new personnel and residents anticipated in earlier studies. Review of actual residential building and subdivision development will help verify and/or revise the areas of anticipated growth and increased traffic. Traffic counts are currently impacted by work-from-home restrictions and school closures. Considering the impacts of these anomalies will be a necessary part of the update process.

The intention of this update is to extend the Road Plan Maps to these areas of growth, re-evaluate previously planned corridors with more detailed topographical information, update the Borough's functional classifications based on traffic and usage, and determine the locations and functional classifications of future road corridors. Much of this will be accomplished using GIS tools and LiDAR data collected in recent years that provide insights into local topographical conditions that influence where



Figure 2: An example of a difference in the location of a planned road corridor in the 1991 Roads Plan versus the physically constructed road, likely due to topography. Source: PDC Engineers.

road corridor construction is feasible. GIS findings will be cross-referenced with recorded subdivision plats as needed to identify planned or constructed roads where legal public right-of-way (ROW) dedication is needed. The plan will serve as a tool to facilitate the acquisition of legal ROW for existing and future road corridors throughout the borough.

This technical memorandum provides a high-level summary of the planning environment, existing conditions, and existing corridors and functional classifications of the Fairbanks North Star Borough road network. The literature review summarizes the planning environment through an analysis of existing and ongoing transportation-related plans, relevant policies, statutes and regulations, and functional classifications within the study area. This memo also includes excerpted maps from the existing plans as well as updated GIS-based maps visualizing the existing road corridors and functional classifications of state and borough roads.

II. Literature Review

The following literature review gives an overview of the planning environment in which the updated Road Plan is being developed. The review includes an analysis of relevant local, regional, and State Policies, Statutes, and Regulations, Functional Classification Systems, and Existing Plans. The literature review provides a brief summary of each document including its relevance to the current effort, key points of convergence and/or conflict with other plans, and a concluding statement. The literature review forms the foundation upon which existing conditions can be understood and forms the basis for all subsequent tasks in developing the updated Road Plan.

A. Policies, Statutes, and Regulations

Five primary Policies, Statutes, and Regulations with relevance to the Road Plan were reviewed in the preparation of this technical memorandum. These include Alaska State Statutes Title 29 – Municipal Government, FNSB Code, Title 17 – Subdivisions, the FAST Planning Transportation Improvement Program 2019-2023, the FAST Planning Complete Streets Policy, and the FAST Planning Green Streets Policy.

1. Alaska State Statutes, *Title 29 - Municipal Government*, Chapters 35 & 40

Synopsis: Alaska State Statutes Title 29 Municipal Government, Chapters 35 and 40 describe the powers and duties of municipal governments in Alaska, and the planning, platting, and land use regulation powers of municipal governments, respectively. AS 29.35 defines the mandatory areawide powers that boroughs are legally required to exercise (Sec. 29.35.150) and additional non-areawide powers that second-class boroughs may exercise by ordinance (Sec. 29.35.210). AS 29.40 Planning, Platting, and Land Use Regulation describes the requirements of first and second class boroughs to establish a planning commission (AS 29.40.020), develop a comprehensive plan (AS 29.40.030), and implement their powers of platting (AS 29.40.070-080) and land use regulation (AS 29.40.040).

Relevance to current effort: Alaska State Statutes Title 29, Chapter 35. Municipal Powers and Duties, Article 2. Mandatory Areawide Powers states that boroughs shall exercise the powers of education, taxes, and land use regulation on an areawide basis. AS 29.35.180. Land Use Regulation states that first and second-class boroughs in Alaska shall “provide for planning, platting, and land use

regulation” in accordance with AS 29.40, which describes the methods through which these powers are applied. Alaska State Statutes 29.35.210 Second Class Borough Powers, states that second class boroughs may by ordinance exercise a number of powers on an areawide basis, including “provide transportation systems.” The FNSB code reflects state statutes in FNSBC 1.12.040 Conferred areawide powers, which states that “the borough by ordinance exercises the following powers on an areawide basis: 1) Provides a transportation system, October 7, 1975.” As a second-class borough, the FNSB has elected to “provide a transportation system” through its mandatory areawide planning, platting, and land use powers, that is, through the subdivision and exactions process. The power to “provide a transportation system” stands in contrast to the power to construct, maintain, and improve roads (road powers) which is carried out on a non-areawide basis by the Road Service Area (RSA) system in the borough outside of the cities, and by the cities themselves within their limits. In other words, the borough “provides a transportation system” per FNSBC 1.12.040 through its planning and platting process working with developers who ultimately design and construct the roads through exactions, which are then maintained by the RSAs, as illustrated in the flow chart below:

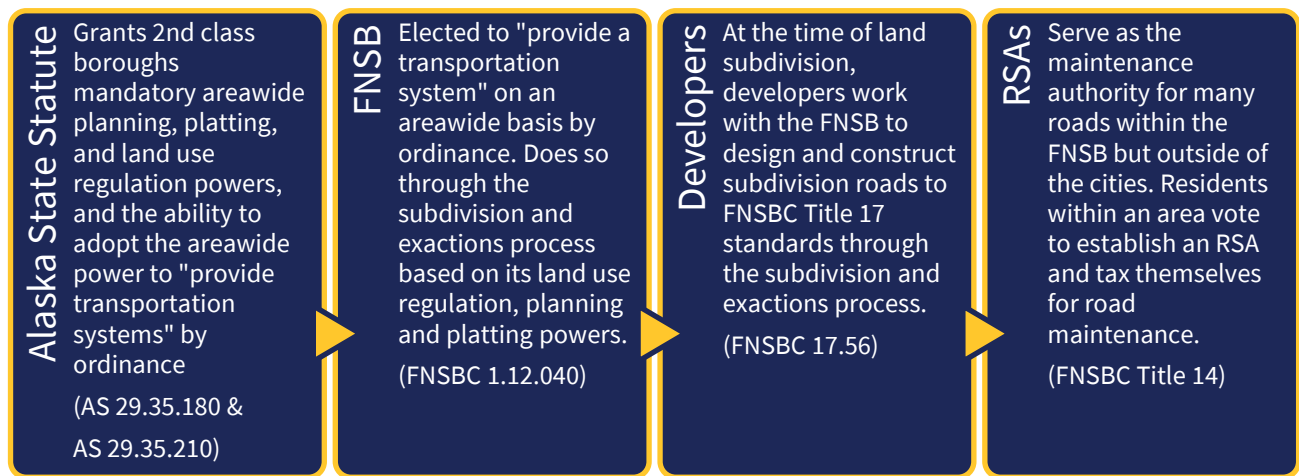


Figure 3: *Division of powers and responsibilities for the road network in the FNSB.*

Key points of convergence/conflict: As a second-class borough, the FNSB obtains its road system through the land subdivision process, which it is authorized to carry out under state law AS 29.40. Planning, Platting, and Land Use Regulation. Specifically, the second-class borough is required to establish a platting authority (AS 29.40.080) to administer subdivision regulations. The assembly is required to adopt platting requirements by ordinance that control the form and size of subdivision lots, street and right-of-way widths and arrangements, and the dedication of streets and other easements deemed necessary for public purposes (AS 29.40.070). AS 29.40 also outlines the requirements of the second-class borough to develop a comprehensive plan that includes a transportation plan component (AS 29.40.030) and grants its power of land use regulation to implement such a plan (AS 29.40.040). The Road Plan is the FNSB’s transportation-centric component of the overall Comprehensive Plan.

Concluding statement: Immediately relevant to the Road Plan as the legal basis in state law mandating the FNSB’s areawide land use regulation powers; its ability to “provide a transportation system” through the subdivision process; and the requirement to develop a comprehensive plan that may include a transportation plan component (the Road Plan).

2. FNSB Code, *Title 17 – Subdivisions*, Chapters 17.08 & 17.56

Synopsis: As a second-class borough, the FNSB provides a road network through the subdivision and exactions process. Title 17 of the FNSB Code outlines all code provisions related to Subdivisions in the Borough and includes General Provisions, Subdivision Applications and Approval Processes, Other Related Applications and Approval Processes, Subdivision Requirements, and Variances – Appeals. Two stated goals of Title 17 are related to providing transportation systems, as explained in the following section. Specific sections of Title 17 define the FNSB’s official road functional classification system (17.56.070) and road construction standards (17.56.080 – 17.56.140), regulate direct lot access onto collector and arterial roads (17.56.010F), outline exemptions to road construction (17.56.065), and most importantly, implement the Road Plan (17.56.110A).

Relevance to current effort: FNSBC 17.08.010(A) describes the purpose of Title 17 as having several transportation-related objectives, including: to promote and provide for adequate and efficient street and road systems; to prevent congestion on streets and promote traffic safety; to provide for adequate utilities and public improvements; and, to protect and improve the health, safety, and general welfare of borough residents. FNSBC 17.08.010(B) acknowledges that the subdivision code provides reasonable consideration of adopted borough plans such as the Road Plan, to provide the best possible subdivision of land. Fairbanks North Star Borough Road Classification definitions are included in Chapter 17.56 Design and Public Improvement Requirements. The FNSB’s official functional classification system as defined by 17.56.070 includes eight different road classification categories, listed from lowest to highest functional class as follows: Pioneer Access Roads, Alleys, Local Road 1, Local Road 2, Minor Collectors, Major Collectors, Frontage Roads, and Arterial Roads. Definitions of each of these functional class categories are provided in Table 5: *Functional classification systems comparison*. Title 17.56.080 – 17.56.140 comprise the Borough’s existing *Road Design and Construction Standards*. The *Road Design and Construction Standards* reference the road functional classification categories in order to assign specific minimum road design standards to each functional class, including Right-of-Way/Trafficway Widths, Road Geometrics and Profiles, Sight Distances, Design Speeds, and Road Construction Standards. FNSBC 17.56.110 Connections with existing and future development, Subsection A, states that “the alignment of subdivision streets shall conform to the comprehensive road plan adopted by the Fairbanks North Star Borough Assembly.” This seemingly simple statement is the key mechanism through which the FNSB can implement the Roads Plan at the time of subdivision. FNSBC 17.56.110(B) requires that “rights-of-way for stub roads, including dead-end streets intended to provide access for future subdivisions or to connect to existing adjacent subdivision roads, shall be provided up to the boundary of the proposed subdivision.” This provision supports the incremental dedication of rights-of-way for future road corridors as adjacent lands are subdivided and ensures that access is not denied to adjacent parcels.

Key points of convergence/conflict: The FNSB Title 17 Design and Public Improvement Requirements (Chapter 17.56) set baseline requirements for road development across the borough through the subdivision and exactions process. FNSBC 17.08.050 Minimum requirements subsection (B) states that when the requirements of Title 17 differ from other requirements defined by law, the most restrictive or highest standard shall govern. Subsection (C) additionally states that the FNSB Platting Board may accept alternate standards of the city in which the improvements are located. The FNSB subdivision requirements apply across the entire borough unless a municipality in the FNSB adopts stricter standards. For example, the City of Fairbanks does not have adopted road classification standards, so the minimum requirements in FNSBC Title 17 would apply. Alternatively, the City of North Pole has adopted the majority of FNSB’s road classification standards, but disallows Pioneer Access Roads within city limits, a stricter standard than in the FNSB overall. As discussed above, likely the most important piece of code in Title 17 related to road development is FNSBC 17.56.110(A) Connections with existing and future development, which requires the alignment of subdivision streets to conform to the Road Plan. This applies across the entire borough and is the mechanism through which the Road Plan is implemented.

More discussion of the relationship between the various Functional Classification systems of the FNSB, cities, State, and local MPO FAST Planning, are included in the Literature Review: Functional Classification Systems section.

Concluding Statement: Most immediately relevant to the Road Plan as Title 17 defines the subdivision process through which the road network is implemented (FNSBC 17.56.110(A)) across the borough.

3. FAST Planning Transportation Improvement Program (TIP), 2019-2023

Synopsis: The Transportation Improvement Program (TIP) is a fiscally constrained document developed by the Fairbanks-area Metropolitan Transportation Organization (MPO) and updated at least every four years. The TIP lays out a program of transportation-related projects for all modes, which are expected to be funded for the time period under consideration, in this case 2019-2023. Projects that appear in the TIP occur only within FAST Planning’s Metropolitan Planning Area (MPA), which is comprised by the Fairbanks-region urbanized area identified and updated through each Census. The TIP identifies how each planned transportation project impacts the Performance Measures identified in the FAST Planning Metropolitan Transportation Plan (MTP). For the most recent update of the MTP (*Envision 2045*), these include: Safety (including fatalities and serious injuries, both motorized and non-motorized), Pavement & Bridge Condition, Travel Time Reliability, and Congestion Mitigation & Air Quality (CMAQ). FAST Planning is required to develop, maintain, and update both the MTP and TIP on federally mandated timelines in order to receive federal transportation planning funds from the Federal Highway Administration (FHWA), U.S. Department of Transportation.

Relevance to current effort: The TIP is an important document for the current planning effort as it gives the most up-to-date information on the near-term transportation projects likely to be funded and carried out by the MPO in the Fairbanks urbanized area. The FAST Planning MPA includes a significant portion of the road network of the FNSB since it covers the most urbanized area within the Borough. Ensuring that road corridors are developed following the Road Plan as property subdivides

saves both FAST Planning and Alaska DOT&PF time and money in the long run by securing appropriate right-of-way access and supporting the integrity of the road network from the earliest stages of development. When corridors are established at the time of subdivision, meet FNSB standards, and conform to the comprehensive Road Plan, this facilitates their inclusion in the FAST Planning TIP if they lie within the MPA boundary.

Key points of convergence/conflict: The “primary study area” of the 1991 Comprehensive Roads Plan and 2006 Mapping Update covers much of the same, but a slightly larger geography as the FAST Planning MPA. Any development of new road corridors or existing corridor realignment projects recommended or initiated by this update to the Roads Plan that fall within the FAST Planning MPA could potentially be added to the FAST Planning MTP and TIP in the future to receive federal transportation funding through the MPO. The MTP and TIP serve as the mechanism through which transportation projects within the MPA get funded and built. As noted above, ensuring right-of-way dedication and corridor development at the time of subdivision saves FAST Planning time and money in the long-term, and facilitates the inclusion of road projects in the TIP to receive federal funds for future upgrades.

Concluding Statement: Ensuring right-of-way dedication and road corridor development at the time of subdivision facilitates inclusion of road projects in the FAST Planning TIP and saves the FNSB, MPO, and DOT&PF time and money in the long run.

4. FAST Planning Complete Streets Policy

Synopsis: The Complete Streets Policy provides guidance to integrate the needs of all users and all modes of transportation into the planning and development of roads in the metropolitan planning area (MPA). The goal is the establishment of a complete network of roads that serve all users. The policy emphasizes connectivity and intends to ensure that the entire right-of-way is planned, designed, funded, and operated for safe access by users of all ages, modes, and abilities. The policy allows flexibility and acknowledges the need to balance cost, environmental, and safety impacts with need and probable use. The use of context-sensitive solutions means that there is no one design prescription but a process that considers users of all modes and strives to develop a complete multi-modal transportation network.

Relevance to current effort: The FAST Planning area constitutes a large area in the FNSB where this policy applies. The concepts outlined in the Complete Streets Policy align with other current and updating plans in the Borough that advocate for accommodation of all users and all modes of transportation. The policy is flexible and allows for reasonable exceptions. Elements of the policy might be considered applicable beyond the MPA.

Key points of convergence/conflict: This is an entirely new concept put in place after the current Roads Plan and brings a new element to the planning and design of roads in the MPA. It does not require a change to functional classifications as the policy applies across the system, but consideration of non-motorized users and identifying corridors to accommodate connectivity could be part of the Road Plan policies in the future. Not acknowledging these multi-modal users in the Plan

update might result in future conflicts as the Complete Streets Policy is just one of several area plans that address the important need for an easily accessible and multi-modal transportation system.

Concluding Statement: Limited immediate relevance to the current effort. Could potentially influence policy in the future as the paved road network expands.

5. FAST Planning Green Streets Policy

Synopsis: The FAST Planning Green Streets Policy is a high-level guiding document communicating the MPO's dedication to the concept of Green Streets for all projects in the MPA. Practices highlighted in the policy include best practices for storm water management including native and site-adapted vegetation, low-impact landscaping, and environmental site design elements to capture and filter urban runoff from the right-of-way to minimize adverse environmental impacts of the transportation system and protect the quality of local water bodies.

Relevance to current effort: This policy document applies to all transportation projects within the MPA, encouraging all local governmental entities to consider adopting similar Green Streets policies and including storm water management considerations in their project designs.

Key points of convergence/conflict: This update of the Road Plan could take the FAST Planning Green Streets policy into consideration for FNSB road corridor projects within the MPA by planning for the possibility of storm water management elements along new and realigned road corridors identified in the Plan. Flood-prone areas of the FNSB experiencing recent growth and necessitating road network expansion and upgrades could consider adding storm water management elements at the time of construction or road upgrade. This could offset the added environmental impacts of additional impervious surfaces and add another layer of community benefit to road improvement projects.

Concluding Statement: Limited immediate relevance to the current effort. Could potentially influence policy in the future as the impervious (paved) road network expands.

B. Functional Classification

Functional classification is the “process by which streets and highways are grouped into classes, or systems, according to the character of service they are intended to provide” (2016 AKDOT&PF Functional Classification Update). The purpose of functional classification, generally, is to strike a balance between mobility, or the movement of people and goods through various modes on the transportation system, and land access to subdivided properties. Some common functional classification categories for roads in urban areas are arterials, collectors, and local roads. Arterials feature the highest mobility and the lowest degree of land access, while local roads have lower mobility with a higher degree of land access. Collectors fall somewhere in between. Functional classifications serve to define the role that a specific road or street plays in serving the flow of trips through an entire network. The functional class is tied to access, design standards, safety, traffic counts, speed limits and funding sources.

1. Functional Classification Systems Relevant to the Road Plan

Four primary road functional classification systems are reviewed in this report, including those of the State of Alaska Department of Transportation and Public Facilities, Fairbanks North Star Borough, City of North Pole and City of Fairbanks. Each functional classification system serves varying purposes based on the objectives of the entity applying them and the size and nature of the geography that they cover. For example, the Alaska DOT&PF functional classification system focuses primarily on designing and constructing roads to a specific standard across the state, and is the primary system tied to federal funding programs. Alternatively, the FNSB’s functional classification system focuses much more on managing land access and road development through the subdivision and exactions process at a local level. It is important to limit access points onto major collectors and arterials for both functionality and safety. As the number of access points (such as driveways and intersections) increase along major collectors and arterials, average speeds are reduced, and more crashes occur.³ A brief description summarizing key aspects of each system is provided in this section followed by a discussion of how each of the systems applies to its respective areas, how they differ or are similar, and how they interrelate.

2. 2010 State Functional Classification Update, Alaska Department of Transportation & Public Facilities

Synopsis: The state DOT&PF Functional Classification System is the defining system for federal funding programs. FAST Planning, the Metropolitan Planning Organization (MPO) for the urbanized areas of the FNSB, including the cities of North Pole and Fairbanks utilizes the DOT&PF Functional Classification System for design and construction purposes.

Relevance to current effort: The Federal Highway Administration (FHWA) requires states to classify **all public roads** per [23 CFR, Part 470 –Highway Systems](#). This includes proposed roads identified in an adopted federal, state, local/regional or federally recognized tribal transportation plan. They also have a manual that provides guidance on the concepts, criteria, and procedures for states to follow.

³ See National Cooperative Highway Research Program (NCHRP) Project 3-33 and Report 420 “Impacts of Access Management Techniques” (1999).

See [Highway Functional Classification – Concepts, Criteria and Procedures](#). According to the report, “to ensure statewide consistency and common definitions, FHWA designates the state highway agency (ADOT&PF in Alaska) as the decision-maker regarding the functional classification of state and non-state public roads, including locally owned roads.” The FHWA classification process, adhered to by DOT&PF during the 2010 update, requires extensive public participation and coordination with local and tribal governments to inform and obtain consensus on individual road classifications.

FHWA recommends state Departments of Transportation conduct a major update of functional classifications after the release of census data every decade. Alaska DOT&PF plans to update the 2010 report in 2022. Functional classifications developed during the update will provide input into the apportionment of federal funds, including the National Highway System (NHS) and Surface Transportation Program (STP) funding. The differences seen in local and regional classification systems are predominantly under the local roads classification. The FHWA publication *Highway Functional Classification: Concepts, Criteria and Procedures* states that “Local Roads are often classified by default.” In other words, once all Arterial and Collector roadways have been identified, all remaining roadways are classified as Local Roads.

Key points of convergence/conflict: In practice, the Cities of North Pole, FNSB, and the City of Fairbanks utilize very similar functional classification definitions to the state classifications. The primary differences occur in the Local Road classification and there is not technically a difference as much as a more refined breakdown of local roads. The local refinement of definitions within this category is a common practice and enables local governments to further define and regulate the local roads under their jurisdictions. The differences in categories and level of detail that do exist between the various systems speak to the different purposes to which the systems are applied. For example, the Alaska DOT&PF functional classifications are intended primarily to apply standard design and construction standards to roads statewide, making them eligible for federal funds, while the FNSB functional classification system serves the primary purpose of guiding the design of subdivision streets and managing access at the local level. Any updates to the functional classification of FNSB roads proposed in the Road Plan will inform the Alaska DOT&PF’s statewide update process in 2022.

Concluding statement: The defining system for federal funding programs. DOT&PF is the FHWA-designated decisionmaker for applying functional classifications to state and non-state public roads statewide. The Road Plan findings can inform the Alaska DOT&PF statewide functional classification update beginning in 2022, but access decisions based on lot configuration are made at the time of subdivision by the FNSB Platting Board.

3. Fairbanks North Star Borough

Synopsis: The official road functional classifications for the FNSB are defined in *Title 17 – Subdivisions*, Section 56.070 of its Borough Code. The Borough uses eight official categories of functional classifications including the following: Arterial roads, Major collectors, Minor collectors, Local Road 1, Local Road 2, Frontage Road, Alley, and Pioneer Access Road. Definitions for each are given in Table 5 of this report. The purpose of the FNSB’s functional classification system is to guide subdivision design, manage direct lot access, and work with developers to implement the road development

process. FNSBC 17.56.070 Road Classifications has been updated three times in recent years: 2004 Code Update, 2005 by Ord. 2005-10 and 2006 by Ord 2005-33.

Relevance to current effort: The purpose of the FNSB’s Road classifications (FNSBC 17.56.070) is to establish a logical and efficient road network through the subdivision process. Road development is initiated at the time when developers subdivide their land. **Exactions** are used by the FNSB to acquire land for public right-of-way and road construction from developers.

Development exactions: A method of land use regulation in which the developer must provide certain public facilities to initiate development. Exactions are intended to protect the public health, safety, and welfare of the community, by providing needed infrastructure upgrades while limiting the negative effects of growth on the existing community. Exactions protect the existing community from new infrastructure costs by passing some of these costs onto developers, who then share the costs with future residents.

Source: Lincoln Institute of Land Policy, Development Exactions: Process and Planning Issues (2006).

When future road corridors are identified and added to the Comprehensive Road Plan, they receive an official functional classification from FNSBC 17.56.070 Road classifications. When land subdivision is initiated by a developer, the comprehensive Road Plan is referenced and the requirements of FNSBC Title 17 are followed to determine the best lot configuration and access for the planned subdivision. FNSBC 17.56.110(A) dictates that all subdivision streets conform to the Comprehensive Road Plan.

FNSBC 17.56.010(F) disallows direct lot access onto any major collector or arterial road.⁴ Studies have shown that as the number of access points along a roadway increases, traffic flow slows, and crash incidence goes up.⁵ Thus, FNSBC 17.56.010(F) works in conjunction with the borough’s official functional classification system to effectively manage access and promote a safe and efficient road network through the subdivision process.

FNSBC 17.56.080 Right-of-way – Trafficway width outlines minimum right-of-way, trafficway, and shoulder widths required for each road type. At subdivision, developers **dedicate** the land required for legal right-of-way to the public. A new legal right-of-way with required minimum width is recorded on the subdivision plat.

FNSBC 17.56.080-17.56.100 and 17.56.120 contain the borough’s official road design and construction standards, which vary by road classification category. Developers are required to build roads to the standards described in Title 17, with limited exceptions.

⁴ FNSB Community Planning Policy 2020-001 provides clarification to 17.56.010(F) by outlining the limited cases in which a variance is *not* required for direct lot access onto a major collector or arterial under 17.56.010(F).

⁵ See National Cooperative Highway Research Program (NCHRP) Project 3-33 and Report 420 “Impacts of Access Management Techniques” (1999).

Dedication: The deliberate grant of land or improvements by an owner to the public for any general and public use, with the owner reserving no other rights than such as are compatible with the full exercise and enjoyment of the public uses to which the property has been devoted.

Source: FNSBC 20.04.010 Definitions.

In 2012, road construction exemptions were added to the FNSB Code due to resident concerns. A subsequent quantitative assessment found that between 2012 and 2019, road exemptions resulted in 67 roads not being built, with major consequences for emergency services, legal access, and unbuilt ROWs. To address these issues, the FNSBC was amended again in 2019 to roll back exemptions, disallowing them in road service areas, fire service areas, and within city limits (FNSBC 17.56.065).

The FNSB Platting Board has the ability to vary the requirements of Title 17 if the strict variance criteria are met.

Key points of convergence/conflict: The 1991 Road Plan states clearly that the City of Fairbanks, City of North Pole, and the Alaska DOT&PF each have their own regulations for “establishing right-of-way widths and construction standards for the road network.” If the cities or DOT&PF adopt their own road standards, then the most restrictive or highest standard will apply within their jurisdiction per FNSBC 17.08.050 Minimum requirements. The City of North Pole has adopted its own functional classifications that are slightly more restrictive than FNSB’s and developed its own standards for road design and construction. The City of Fairbanks has not codified its own road design and construction or functional classification standards but follows AASHTO and state guidance, which is generally more restrictive than FNSB’s standards for roads. Thus, FNSBC 17.08.050 provides clarity as to which road standards apply in the various jurisdictions in the borough.

As discussed above, arguably the most important piece of code to the Comprehensive Road Plan is FNSBC 17.56.110 Connections with existing and future development, subsection (A): “The alignment of subdivision streets shall conform to the comprehensive road plan adopted by the Fairbanks North Star Borough.” This brief statement is the sole mechanism through which the FNSB’s official functional classifications are applied and how the Comprehensive Road Plan is implemented across the entire FNSB through its powers of land use regulation, planning, and platting as land subdivides.

Concluding statement: Essential to the current effort. The FNSB’s official functional classification system for roads housed in 17.56.070 is applied to existing and planned future corridors in the Comprehensive Road Plan, which is implemented by FNSBC 17.56.110(A). FNSB Title 17 minimum requirements apply across the entire borough, with the exception of inside the municipal boundaries of the City of North Pole, City of Fairbanks, and on DOT&PF-managed roads where those entities’ generally more restrictive standards apply (FNSBC 17.08.050, B-C).

4. City of North Pole

Synopsis: The City of North Pole defines its road functional classifications in its “Design Guidelines for Streets and Drainage” standards document, as referenced in North Pole Municipal Code 12.16.010 Street and drainage systems – Design and construction.

Relevance to current effort: “Part 2: Streets,” of the “Design Guidelines for Streets and Drainage” document states that “particular attention should be focused on Fairbanks North Star Borough, Title

17, and *A Policy on Geometric Design of Highways and Streets* by the American Association of State Highway and Transportation Officials” (AASHTO). Thus, the City of North Pole bases its own road functional class definitions on those of the FNSB, as defined in Title 17.56.070 of Borough Code with some changes. Section 2.2. Types of Streets lays out six main classes of roads to be applied within city boundaries. It once again references FNSBC Title 17 classifications, but with several changes meant to tailor the system to the urban area. The six categories are: Local Road, Minor Collector, Major Collector, Arterial, Frontage Road, and Alley. The document states that “no pioneer access roads will be approved within the City.” The other difference between North Pole’s system and FNSB’s is that the city combines Local Road 1 and 2 classes as seen in Title 17 into a single Local Road category for use within the city. City of North Pole definitions are provided below in Table 4.

Key points of convergence/conflict: The City of North Pole’s functional classification system applies only within city limits and is slightly more restrictive than that of the FNSB overall (FNSBC 17.08.050, B-C). City of North Pole disallows Pioneer Access Roads and only has a single Local Road category in contrast to the FNSB system that has two. There is little opportunity for conflict between the two systems to arise as they are quite similar, and the boundaries are clear. The City of North Pole was included in the study area of the 1991 Road Plan. Coordination between the FNSB and City of North Pole may be necessary for assigning functional classifications to any existing roads or planned corridors that cross the municipal boundary and feature sections located in both the FNSB and the City of North Pole.

Concluding statement: Important for coordination purposes. The City of North Pole is covered by the study area of the 1991 Road Plan and will likely remain in the study area with this update. Coordination between the FNSB and City may be necessary for classifying existing roads and future corridors that cross from the FNSB into city limits.

Table 4: *City of North Pole road functional class definitions.*

City of North Pole, Road Functional Classifications	
Classification	Definition per City of North Pole “Design Guidelines for Streets and Drainage”
Local Road	Local roads provide access to adjacent residential lots. Any road which does not fall into one of the other categories will be designated a local road.
Minor Collector	Minor collectors join one or more local roads to the surrounding road system and may provide access to adjacent lots as well. As a rule, any road or section of road which handles the traffic from more than fifty (50) residential lots itself or serving one or more local roads with a cumulative total of more than fifty lots, will be designated as a minor collector or better. Any road serving commercial or industrial lots will be designated as a minor collector or better.
Major Collector	Major collectors will be designated by joint agreement between the Developer, the City, and the State of Alaska DOT&PF.
Arterial	Arterials will be designated by joint agreement between the Developer, the City, and the State of Alaska DOT&PF.
Frontage Road	Frontage roads provide access to lots that otherwise would be landlocked by a limited access arterial or major collector. Frontage road design will require close cooperation between the Developer, the City, and the State of Alaska DOT.
Alley	Alleys provide secondary access to back or side lot lines of lots and may be a convenient route for utilities. Under no circumstances may an alley provide the sole access to a lot. ⁶

5. City of Fairbanks

Synopsis: The city code does not specify road classifications. Outreach to the city revealed that they use AASHTO and State of Alaska design guidance for local roads and subdivisions.

Relevance to current effort: As a part of both the FNSB and the FAST Planning MPA, road classifications within the City of Fairbanks are thought to comply with state standards for arterials and collectors and FNSBC definitions for local roads. Coordination among the cities, Borough, and State are facilitated by FAST Planning as the local MPO.

Key points of convergence/conflict: The 1991 Road Plan and 2006 mapping update did not include Township 01S 01W in its study area, as most of it is comprised of the City of Fairbanks urban core. A portion of the Township does lie outside of city limits and could be included in the Road Plan update, due to potential growth in the industrial area primarily south of the Mitchell Expressway. As the Road

⁶ FNSB has recognized that the City of North Pole and City of Fairbanks road standards are typically of a higher standard than what FNSBC Title 17 requires. That recognition is codified in:

- FNSBC Title 17.08.050(B), which requires that the most restrictive or highest standard shall govern; and
- FNSBC Title 17.08.050(C), which allows the FNSB Platting Board to accept alternate standards approved or adopted by the City in which the property is located.

Plan update proceeds, a key point of discussion will likely center on whether this Township should be included in the study area of the update. Coordination with the City of Fairbanks will be necessary for assigning road classifications to existing and future corridors that cross from the FNSB into city limits, and for making potential future connections with city roads.

Concluding statement: Important for coordination purposes. The City of Fairbanks urban core area was not covered by the study area of the 1991 Road Plan. Inclusion of Township 01S 01W areas that lie outside of city limits may be considered for including in the Road Plan update. Coordination between the FNSB and City will be necessary for classifying existing roads and future corridors that cross into city limits or connect to existing city roads.

Table 5: Functional classification systems comparison.

FNSB per 17.56.070 City of North Pole* City of Fairbanks**	State of Alaska DOT&PF (2010) Report**** FAST Planning City of Fairbanks**
	Interstate: All presently designated routes of the Interstate Highway System as established by FHWA
<p>Arterial roads are designed to move through traffic to and from major traffic generators or out of a community.***</p> <p>*City of North Pole classifications are codified and based upon FNSB categories, but not identical. Refer to Table 4 for City of North Pole definitions.</p> <p>**The City of Fairbanks is part of both the FNSB and the FAST Planning MPA, but unlike the City of North Pole, does not codify road classifications.</p> <p>***FNSBC Title 17.56.010(F) prohibits direct lot access onto a major collector or arterial unless topography allows no reasonable alternative.</p>	<p>Principal Arterial roads provide mobility so traffic can move from one place to another quickly and safely; includes freeways and expressways with traffic volume over 15,000 AADT. ****Additional guidelines in the full DOT&PF report.</p> <p>Minor Arterial roads provide mobility, run 1-3 miles, and have traffic volumes of 4,000 to 15,000 AADT. They serve smaller geographic areas, with more emphasis on land access ****Additional guidelines in the full DOT&PF report.</p>
<p>Major Collectors collect traffic from local streets and minor collectors and channel it to the arterial system.***</p>	<p>Urban Collector roads link arterials and local roads and perform some duties of each. They have traffic volumes of 500 to 6,000 AADT and run 1/8 mile to 1 mile long. ****Additional guidelines in the full DOT&PF report.</p>
<p>Minor Collectors collect and distribute traffic from local roads and carry it to major collectors or the arterial system. Minor collectors serve as potential through or spine roads within subdivisions or serve nonresidential areas.</p>	<p>Rural Major Collector collect traffic from local streets and minor collectors and channel it to the arterial system. Rural Minor Collectors collect traffic from local roads to distribute to major collectors or arterials.</p>
<p>Local Road 2 is a road within a residential subdivision which provides or supports access to 11 to 40 lots and does not function as a minor collector.</p>	<p>Local Roads provide access to homes, businesses, and other property. Includes all local streets not included in higher classifications.</p>
<p>Local Road 1 is a road designed to provide direct access to individual properties and have the potential of serving 10 or fewer residential lots, with a maximum length of 1,320 feet (1/4 mile).</p>	<p>The State of Alaska DOT&PF provides a GIS map with the following legend. DOT&PF does not break out local roads into multiple categories as the FNSB does.</p>
<p>Frontage Road is a road that separates properties from heavily traveled arterial roads and that eliminates the need for unlimited access to those roads.</p>	<div data-bbox="792 1423 1192 1780" style="border: 1px solid black; padding: 5px;"> <p>Functional Classification</p> <ul style="list-style-type: none"> — INTERSTATE — PRINCIPAL ARTERIAL - OTHER — MINOR ARTERIAL — MAJOR COLLECTOR — MINOR COLLECTOR — LOCAL </div>
<p>Alleys are designed to provide secondary access to areas proposed for dwellings, commercial or industrial uses or subdivisions where service access, rear parking, or loading is desirable.</p>	
<p>Pioneer Access Roads may be appropriate for access to individual subdivided properties five acres and larger, with a maximum of five lots, requiring road construction. (Not allowed in City of North Pole)</p>	

6. Relationships between Functional Classification Systems

Functional classifications serve to define the role that a specific road or street plays in serving the flow of trips through an entire network. The functional class is tied to access, design standards, safety, traffic counts, speed limits and funding sources. The two primary systems used in the FNSB are the Alaska DOT&PF Functional Classifications and the FNSB definitions codified in Title 17. Table 5 compares the two system definitions. The FNSB applies functional classifications as defined in Title 17 to road corridors on a case-by-case basis at the time of subdivision of adjacent lands or other increase in development activity. The State of Alaska relies on access restrictions through the FNSB platting process to ensure sufficient access management on its major collector and arterial roadways.

The casual observer might assume that the Alaska DOT&PF and FNSB functional classification systems are conflicting, however a closer analysis reveals the systems are designed to focus on the specific roadways and needs within each jurisdiction's control. The DOT&PF classifications follow the guidelines established by the U.S. Department of Transportation's Federal Highway Administration (U.S. DOT FHWA) and are utilized by DOT&PF and FAST Planning to guide project planning and design of interstates, arterials, and collector roads. The FNSB definitions correspond with DOT&PF but provide greater detail in the breakdown of local roads that serve subdivisions, rural populations, and local businesses. This allows the local governments and planning agencies greater latitude in defining standards for subdivision development and to address local priorities. The FNSB functional classifications in Title 17 serve the primary purpose of guiding local road development through the FNSB's land subdivision process. The classifications also serve the important purpose of managing direct lot access to higher capacity roads, which protects the safety and efficiency of the entire road system.

Since the Alaska DOT&PF manages many roads within the FNSB's boundary, the FNSB as Platting authority (AS 29.40.080) must use its platting regulation powers (AS 29.40.070) to manage access onto both state and borough roads. FNSBC 17.56.020. Legal Access, Subsection (A) requires that all subdivisions have legal access originating from a state-maintained roadway available for year-round public use to the boundary of the subdivision. The planned functional classifications laid out in the Road Plan and applied through the subdivision process are intended to limit access to State-maintained and higher-volume roads. This is accomplished through FNSBC 17.56.010, which prohibits direct lot access onto arterials and major collectors, except in cases where topography offers no reasonable alternative. Under these statutes, the FNSB holds the platting authority and thus must coordinate with the State DOT&PF to ensure that access is managed in a way that protects the health, safety, and welfare of the community.

Access management techniques, such as limiting direct lot (driveway) access onto major collector and arterial roads, serve the dual purpose of 1) preserving roadway capacity and speed and 2) improving safety. Alternatively, if access is not appropriately managed, road capacity, speed, and safety are

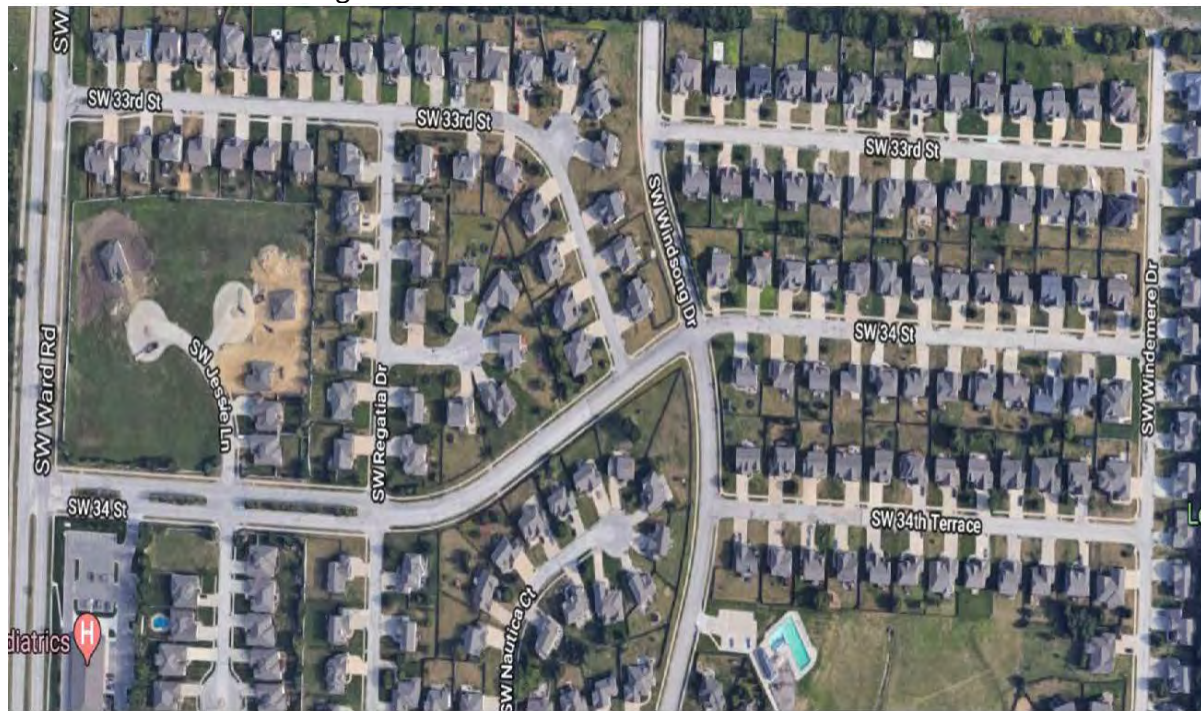


Figure 4: A subdivision with streets of varying functional classification to manage mobility (capacity and speed) and land access. Collectors and arterials (e.g., SW Windsong Dr and SW Ward Rd) have a higher functional classification and greater mobility than local roads (e.g., SW 34th Terrace, SW Regatta) that have greater access to adjacent properties. Source: FNSB Community Planning.

negatively impacted. The Transportation Research Board’s National Cooperative Highway Research Program (NCHRP) Report 420: Impacts of Access Management Techniques, illustrates this point. In an analysis that considered 240 segments of road across eight states with more than 37,500 total crashes, the study found that each additional access point per mile of road increased the crash rate by four percent. To put this into perspective, a road segment with 60 access points per mile would likely have an accident rate three times that of a similar segment with 10 access points per mile. This research underscores the importance of access management as implemented through FNSBC Title 17 and the Road Plan to preserving the capacity and safety of roads in the FNSB.

Planning document review indicates that the Cities of North Pole and Fairbanks, the FNSB, FAST Planning, and DOT&PF work collaboratively on planning and development in their overlapping jurisdictions. Updating the 1991 Comprehensive Road Plan provides an opportunity to review the FNSB road classifications and definitions to determine if they still align with the unique characteristics and future vision for the area.

C. Existing Plans

1. 1991 FNSB Comprehensive Road Plan

Synopsis: Adopted July 11, 1991, the “FNSB Comprehensive Road Plan: Official Maps and Policies” lays out policies to guide road development in the Borough. The plan’s policies are intended to build upon and add additional clarity to roads-related policies originally laid out in the 1984 Comprehensive Plan. The maps included in this plan were updated in February 2006 and have guided all subdivision

road development in the Borough to the present day. The Comprehensive Road Plan works in conjunction with FNSB Code Title 17 through section 17.56.110(A), which states that “the alignment of subdivision streets shall conform to the comprehensive road plan adopted by the Fairbanks North Star Borough assembly.” This is the mechanism through which the Road Plan is implemented by the Borough and how it has guided subdivision development for the past three decades.

While the plan applies to the entire Borough, the cities of Fairbanks and North Pole retain their own road standards and classifications (FNSBC 17.08.050). The six major policy areas of focus in the 1991 Comprehensive Road Plan are: Access/Rights-of-Way, Traffic Circulation, Aesthetics, Environment, Community Impact, and Safety. Most importantly, the plan also provides eighteen maps within the primary study area showing the classifications of existing rights-of-way (both unconstructed and constructed platted roadways) and the proposed routes of future road corridors (unplatted). As land is subdivided, right-of-way dedications are acquired from developers by the borough through its land use regulation, planning, and platting powers in the exactions process.⁷ FNSBC 17.56.110(A) requires developers to reference the Road Plan and design subdivision streets in conformity with planned future corridors as identified in the Plan.

The classifications used in the 1991 Road Plan for existing rights-of-way are Arterials and Major Collectors. The classifications used for proposed road corridors are Major Collectors, Minor Collectors, and Future Study.

Relevance to current effort: The current planning effort includes updating the original maps, potentially expanding the study area, and updating the policies of the 1991 FNSB Comprehensive Road Plan.

Key points of convergence/conflict: The 1991/2006 FNSB Comprehensive Road Plan will be a vital tool to understand how road corridor development has occurred over the past three decades as the FNSB community has grown. The project team will use this document and its maps as a baseline to compare proposed corridors with built corridors in the FNSB. GIS analysis will be used to identify where roads have been built since the previous plan update, and where legal right-of-way has and has not yet been acquired by the FNSB for public roads and streets. Satellite imagery and LiDAR can be used to determine whether built corridors reflect their proposed locations, or whether adjustments should be made in the updated Road Plan maps to better reflect the real locations of built corridors due to topography and other factors.

Concluding statement: Serves as a baseline for and will be updated through the current planning process.

2. 2005 FNSB Regional Comprehensive Plan

Synopsis: The last update of the FNSB’s Comprehensive Plan occurred in 2005. As dictated by State law AS 29.40.030, this plan outlines “policy statements, goals, standards, and maps for guiding the physical, social, and economic development, both private and public, of the first- or second-class Borough.” The Comprehensive Road Plan is an element of the Regional Comprehensive Plan, and

⁷ See Page 13 for an overview and definition of **Dedication** and **Development exactions**.

received a mapping update from its 1991 version in 2006, after the adoption of this Regional Comprehensive Plan.

The Regional Comprehensive Plan covers the areas of Land Use, Economic Development, Transportation and Infrastructure, Environment, and Community and Human Resources, laying out several high-level goals in each area, which are further broken down into strategies and actions in the Implementation section of the plan.

Relevance to current effort: Many of the 2005 Regional Comprehensive Plan’s goals, strategies, and actions have important guiding implications for the new Road Plan. Specifically, the “Land Use” and “Transportation and Infrastructure” goals provide a strong foundation upon which to begin updating the Road Plan.

Key points of convergence/conflict: The Transportation and Infrastructure section “Goal 1: To have a safe, efficient, multi-modal transportation system that anticipates community growth” has direct implications for the current planning effort. Specifically, “Strategy 1: Encourage location, design and maintenance of roads based on their function and community needs” will be directly supported with the new plan. Delving down deeper, Goal 1, Strategy 1, “Action A: Update and maintain the Comprehensive Road Plan” is the most obvious point of convergence. Actions B, C, and D are also very relevant, laying out a vision to guide road placement and design, including the requirement that developers provide adequate rights-of-way and construct roads to Borough standards (Action B), ensure that road designs improve safety through limited access points on higher volume roads (Action C), and retaining neighborhood integrity as community growth drives expansion of the road network (Action D).

Additionally, several Actions in the *Transportation and Infrastructure: Implementation* section of the Comprehensive Plan give direct recommendations for several new road corridors in the Borough, including Strategy 2, “Action A: Improve and expand road and bridge linkages among communities including: a road from Two Rivers to North Pole; Chena Hot Springs Road connection to Circle Hot Springs Road and Northern Steese Highway, forming a loop; and Dennis Road extension to Secluded Acres.”⁸ These recommendations should be considered in the current effort.

Concluding statement: Will help with policy guidance and road corridor maps.

3. 2006 FNSB Joint Land Use Study

Synopsis: The FNSB Joint Land Use Study (JLUS) is a collaboration between the FNSB, Air Force, and Army to explore “opportunities to accommodate necessary growth and to maintain the regional economic sustainability associated with Fort Wainwright Army Post and Eielson AFB.” The JLUS process is intended to give the community, local government representatives, and military representatives an open forum in which to identify, discuss, and develop action plans to address potential and existing issues of land use compatibility around the military bases. Some of the issues

⁸ The Dennis Road extension to Secluded Acres subdivision already appears in the 1991 Road Plan and 2006 mapping update.

identified include noise in and around the bases, access to military lands for recreational purposes such as hunting, and compatible future development of lands adjacent to the bases.

Relevance to current effort: Since the military installations at Fort Wainwright Army Base and Eielson Air Force Base are key population and economic centers, the Road Plan should give special attention to transportation issues in and around the military bases in the FNSB, including those specific issues identified in the 2006 JLUS.

Key points of convergence/conflict: The 2006 FNSB JLUS identified several transportation related issues near the military bases. These included slow moving convoys on the Richardson Highway, alterations to land use patterns due to railroad realignment and a new bridge over the Chena River, and community concerns over potential loss of travel routes in emergency road closure situations due to base activities.

Concluding statement: Will help with policy guidance and developing corridors around the military bases.

4. 2006 FNSB Comprehensive Recreational Trails Plan

Synopsis: Similar to the Comprehensive Roads Plan, the Comprehensive Recreational Trails Plan is also a component of the FNSB Regional Comprehensive Plan. The Comprehensive Trails Plan serves the purpose of assisting the Borough and other agencies in “identifying and preserving important recreational trail corridors” and has the stated goal of facilitating trail development in conjunction with other categories of land development. The Trails Plan has three main components, including: a three-category system of trails (federal and state trails, FNSB trails, and neighborhood trails); an Adopt-a-Trail program; and the creation of a “trail dedication authority for trails identified in the [Trails Plan] which cross land undergoing the subdivision process.”

Relevance to current effort: Since both the Road Plan and the Comprehensive Trails Plan are components of the FNSB Regional Comprehensive Plan, it is essential that any policies and future right-of-way developments laid out in each take into consideration any implications for the other, either trail or roads development in the Borough. The Comprehensive Trail Plan will be an important resource to understand the existing locations of FNSB trails and to evaluate any existing and/or future conflicts between trail and road corridor development.

Key points of convergence/conflict: As the primary guiding document dealing with trails and trail corridors not yet dedicated for public use, it will be important to consider the location of existing and especially proposed trail corridors in the development of future road corridors and classifications. Points of conflict may include crossing points between trail and road corridors (existing, proposed, and/or realigned) and trail access points along road corridors.

Concluding statement: Will help with policy guidance and aid in coordinating and minimizing conflicts between road and recreational trail development in the borough.

5. 2010 City of North Pole Land Use Plan

Synopsis: As recommended for each community in the 2005 FNSB Regional Comprehensive Plan, the 2010 City of North Pole Land Use Plan lays out community-informed goals, a land use map, implementation strategies, proposed multi-modal transportation corridors, and open space maps.

Relevance to current effort: Since transportation is intricately tied to land use, it will be essential that the Road Plan take into consideration existing and future land use outlined in the City of North Pole Land Use Plan. The North Pole Land Use Plan provides a map showing road classifications as well as existing and potential transit routes and nodes, rail corridors and proposed realignments, and off-road-vehicle (ORV) and non-motorized transportation facilities.

Key points of convergence/conflict: While the 1991 Road Plan states that respective functional classification systems of the municipal governments within the Borough will be maintained, the City of North Pole decided to base their own system of road classifications on that of the FNSBC Title 17.56.070 through its “Design Guidelines for Streets and Drainage” standards document. In Part 2: Streets, the following functional classifications are defined, based on the FNSB Title 17.56.070 categories: Local Road, Minor Collector, Major Collector, Arterial, Frontage Road, and Alley. Key differences between the FNSB classifications and those of the City of North Pole are a single Local Road category instead of the FNSB’s Local Road 1 and 2, and explicit exclusion of the Pioneer Access Road category within city limits. Updates to the City of North Pole road classifications may also need to be considered if the functional classifications in FNSBC Title 17 are updated through the current planning effort and for streets that cross the city boundary.

Concluding statement: Will help with policy guidance. No new corridors planned in this effort.

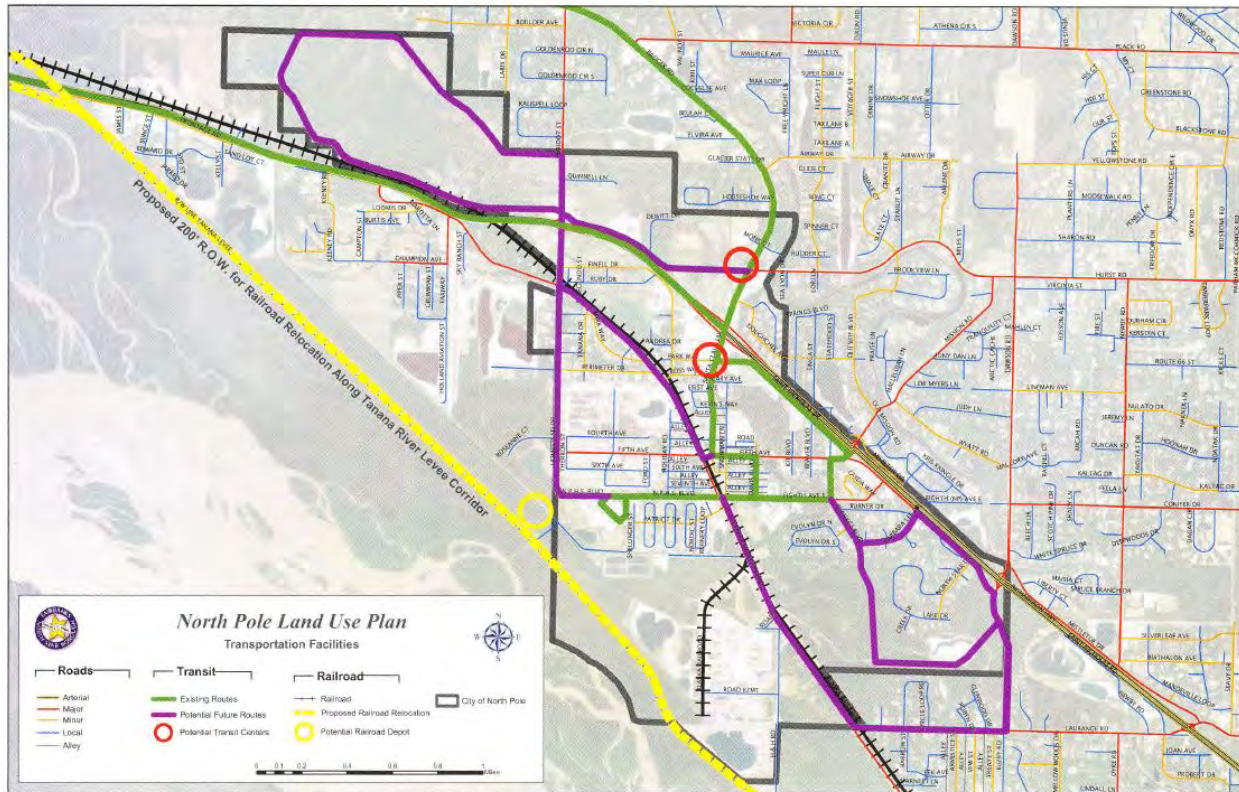


Figure 5: Transportation Facilities Map from the 2010 North Pole Land Use Plan showing transit, road classifications and proposed rail realignments.

6. 2013 FNSB Land Suitability Analysis

Synopsis: The Land Suitability Analysis evaluates natural landscape characteristics to inform the FNSB Regional Comprehensive Plan land use map. The analysis includes soil conditions, slopes, solar aspects, natural hazards, and natural features such as watersheds, stream corridors, wetlands, and wildlife hazards. The data is compiled in a set of GIS-based maps evaluating land use characteristics and overview maps providing environmental reference points. Currently being updated.

Relevance to current effort: The maps and inventory of potentially developable land and soil characteristics are relevant to future land use and population patterns. The slope classifications within the study are relevant to development and road construction evaluations due to the FNSB requirements limiting grade to no more than 10%.

Key points of convergence/conflict: The maps in this analysis used only existing data; creating significant gaps in outlying areas, particularly the eastern half of the Borough. Further study is recommended to collect new primary data in outlying areas. The study discovered that large portions of the populated areas of the Borough were mapped at different times and as a result, have different resolution and detail. Significant changes have occurred since this “snapshot” was developed and any specific road development requires updated data.

Concluding statement: Can help with map development and evaluating on-the-ground topographical conditions that may impact the siting of future road corridors.

7. 2016 City of North Pole Strategic Plan

Synopsis: The 2016 North Pole Strategic Plan provides a vision, a set of values, goals and priorities for the North Pole community for the five-year period of 2016-2021. The plan offers a framework to guide community development in the areas of Economic Development; City Management, Public Facilities and Services; Land Use and Housing; Parks, Recreation and Transportation; Energy; and Environmental Health.

Relevance to current effort: The goals outlined in the Parks, Recreation and Transportation section of the plan are most relevant to the current process. They should be considered as guiding goals and strategies for future transportation planning and development in the North Pole area. The plan includes the “FMATS Map of Roadways and Classifications” indicating existing road classifications within the regional MPO boundary, which includes the City of North Pole (Figure 6, below). This map shows the key Interstates, Arterials, and Collectors that cross through the City of North Pole, using the FAST Planning functional classification system, which is based upon that of the State of Alaska DOT&PF.

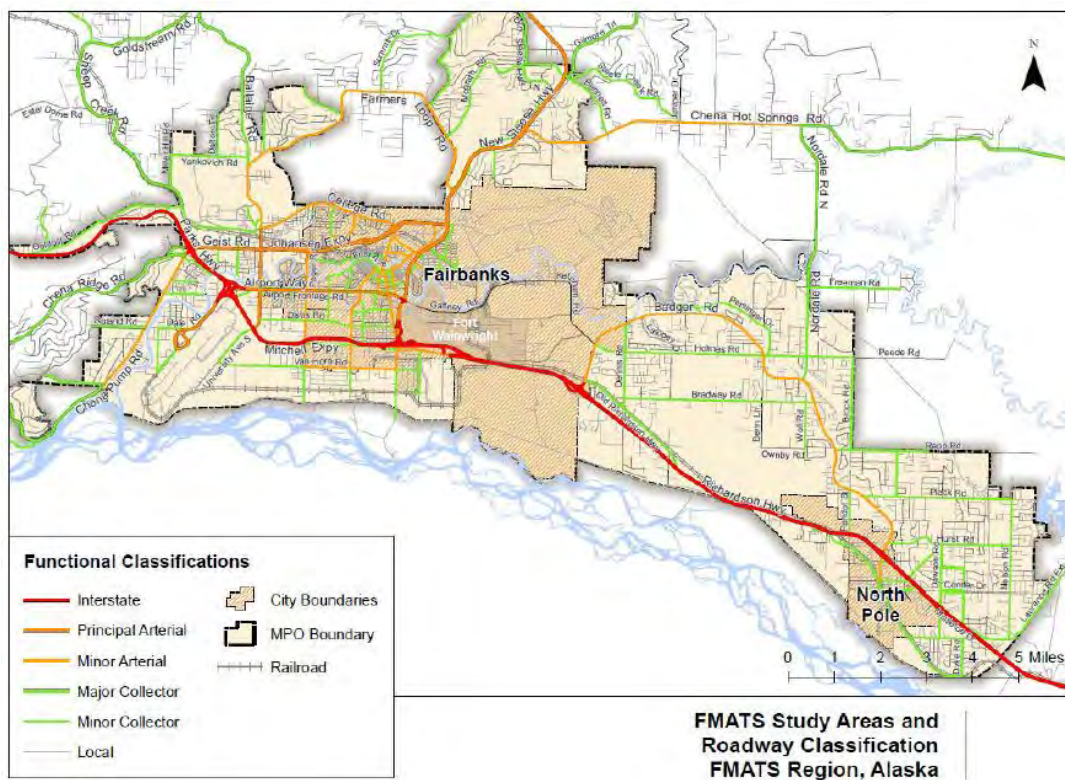


Figure 6: FMATS Road Classifications Map from the 2016 North Pole Strategic Plan. Source: FMATS 2040 Transportation Plan Update, January 2015. Map produced by Kittelson & Associates.

Key points of convergence/conflict: The Strategic Plan makes specific mention of the FNSB Comprehensive Road Plan under Goal B: Promote a Connected Transportation System in North Pole,

stating as Strategy (3e) to “encourage the FNSB to update the Comprehensive Road Plan and ensure North Pole participation in the effort.” Goal B, Strategies (b-e) make specific recommendations of new road corridors that could benefit North Pole and the surrounding areas. These include the following: 1) a connection from North Pole to Chena Hot Springs, potentially through a loop between Circle Hot Springs Road and the North Steese Highway; 2) A new road between Two Rivers and North Pole; 3) Richardson Highway parallel alternate routes through North Pole between Peridot Street and Laurance Road; 4) Extending Dennis Road from Badger Road to Seawolf Drive to give access to an existing residential area, including pedestrian facilities and reconstruction for increased travel demand as well as for safety improvements and decreased maintenance.

Another point of convergence is the Plan’s discussion of Alaska Railroad realignment in North Pole, which could have major implications for future road corridor development, necessitating coordination. The North Pole Strategic Plan includes the FMATS Road Classifications Map with functional classifications of Interstate, Principal Arterial, Minor Arterial, Major Collector, Minor Collector, and Local roads (Figure 6).

Concluding statement: Could inform policy development and planning for the road corridors identified in the Strategic Plan.

8. 2018 Alaska Strategic Highway Safety Plan

Synopsis: The State of Alaska Strategic Highway Safety Plan is a data-driven document designed to address traffic fatalities and serious injuries on the State’s highway system through a multi-disciplinary and collaborative approach engaging with the fields of engineering, law enforcement, emergency medical services, and education. The State of Alaska updated its SHSP in 2017 with the help of a fifty-five-member steering committee that identified three key emphasis areas: Driver behavior (impaired driving, young drivers, older drivers, and occupant protection), Roadways (lane departures, intersections, and wildlife collisions), and Special Users (pedestrians, bicyclists, motorcyclists, and ORVs). The goal of the updated plan, as identified by the steering committee, is a 3.1 percent per year reduction in fatalities and serious traffic injuries.

Relevance to current effort: The “Roadways” emphasis area and engineering-focused recommendations in the SHSP are most applicable to the current planning effort. The plan considers how the design of roadways and the surrounding environment can be improved to decrease crashes and crash severity.

Key points of convergence/conflict: The SHSP underscores the importance of safety when considering the locations and design of new road corridors and the assignment of functional classifications. Minimizing road corridor and rail conflicts as discussed in the SHSP and assigning new corridors with the most appropriate functional classifications to efficiently manage access and promote safety are key aspects to consider in the Road Plan.

Concluding statement: Only relevant when considering functional classification and access implications for roadway safety.

9. 2018 FMATS Metropolitan Transportation Plan, *Envision 2045*

Synopsis: *Envision 2045* updates the Fairbanks Metropolitan Area Transportation System’s (FMATS) Metropolitan Transportation Plan (MTP) and is specific to the urbanized area of the Borough, known as the metropolitan planning area (MPA). The MTP projects out twenty years and is updated every four years. The MTP analyzes existing conditions impacting all modes of the transportation system, establishes goals and objectives, develops performance targets, assesses future needs including policies, and makes fiscally constrained recommendations based on these assessments. FMATS planning meets state and federal requirements to qualify for federal transportation funding and is focused on transportation project planning, prioritization, and implementation. Near term projects in the plan include information on the funding stream and expected project dates.

Relevance to current effort: The MTP accurately lists near-term, middle-term, and long-range transportation projects, including those relevant to the Road Plan. The MTP document and Technical Appendices A-C include in-depth analysis of road project statuses and future regional growth projections that can help inform the identification of future road corridors and classifications. Projects identified in the current MTP that could potentially be developed through the subdivision process include the following middle, long range, and very long range projects:

Table 6: *MTP projects that could be developed through the subdivision process.*

2045 MTP Project Number (2018)	Project Name
MR-4	Dawson Road Extension (Hurst Road-Plack Road)
MR-12	Richardson Highway Corridor Study: Badger Road to Salcha
MR-13	Dennis Road Extension: North Pole
MR-65	Richardson Highway (NP) Alternate Route: Peridot Street-Laurance Road
LR-21	Richardson Highway: Access/Safety Improvements (Rozak Road-Peridot Street)
VLR-3	Lyle Avenue Extension (Newby Road-Nelson Road)
VLR-5	Goldizen Road Local Connections
VLR-7	University Avenue/Goldizen Signal (Phillips Field Road-Birch Lane)
VLR-11	Chena Rump Road Connection
VLR-20	Dennis Road/Lazelle Road Corridor: Steese Expressway/Johansen Expressway-Badger Road
VLR-27	Richardson Highway Area Roadway Improvements (Local Roads)
VLR-28	Old Steese Highway: Farmers Loop Road-Chena Hot Springs Road

Key points of convergence/conflict: Key points of consideration for the Road Plan effort include the above list of MTP projects that could be supported or developed through the FNSBC Title 17 subdivision process. Since all of these projects involve new or realigned road connections, most are middle, long, or very long range. As the Road Plan is updated, special attention should be given to future corridors near to or identified within the MTP projects above, to ensure that key connections are made as land subdivides. If the Road Plan and MTP are aligned, they can serve as important

mutually supportive planning processes to plan, fund, and implement a logical and efficient road network in the MPA. New road connections identified in the Road Plan may eventually be included in the MTP to receive federal funds. An example of a project identified in the 1991 Road Plan that is now included in the MTP is MR-13 Dennis Road Extension: North Pole, to extend Dennis Road from Badger Road to Seawolf Drive in order to provide access to an existing residential area across the Chena River.

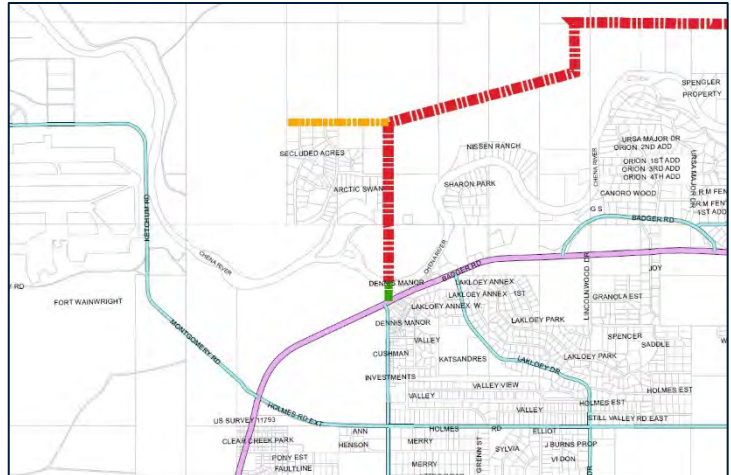


Figure 7: The Dennis Road Extension is an example of a needed connection identified in the 1991 Road Plan that is now included in the FAST Planning MTP as a middle range project. Source: FNSB Comprehensive Road Plan, 2006 mapping update.

The MTP’s analysis and maps of projected future housing and traffic growth in the region can help guide the location and classification of new road corridors in the Road Plan.

Concluding statement: Could inform policy and specific projects. Especially relevant to MTP projects involving new right-of-way and road connections that could be acquired through the subdivision process (see Table 6).

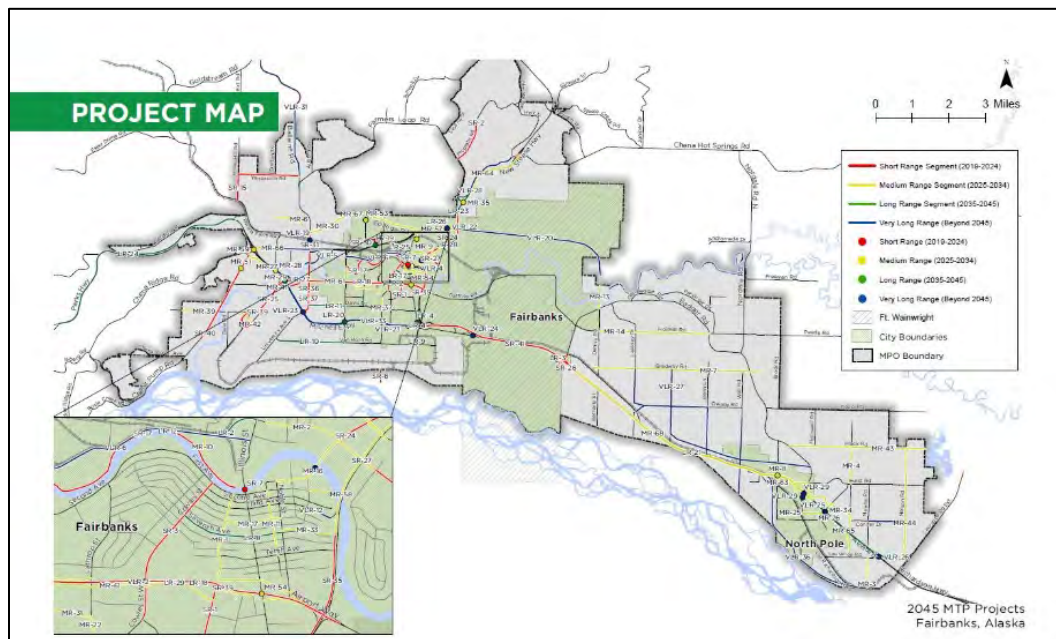


Figure 8: Project Map from the 2018 FMATS MTP, Envision 2045.

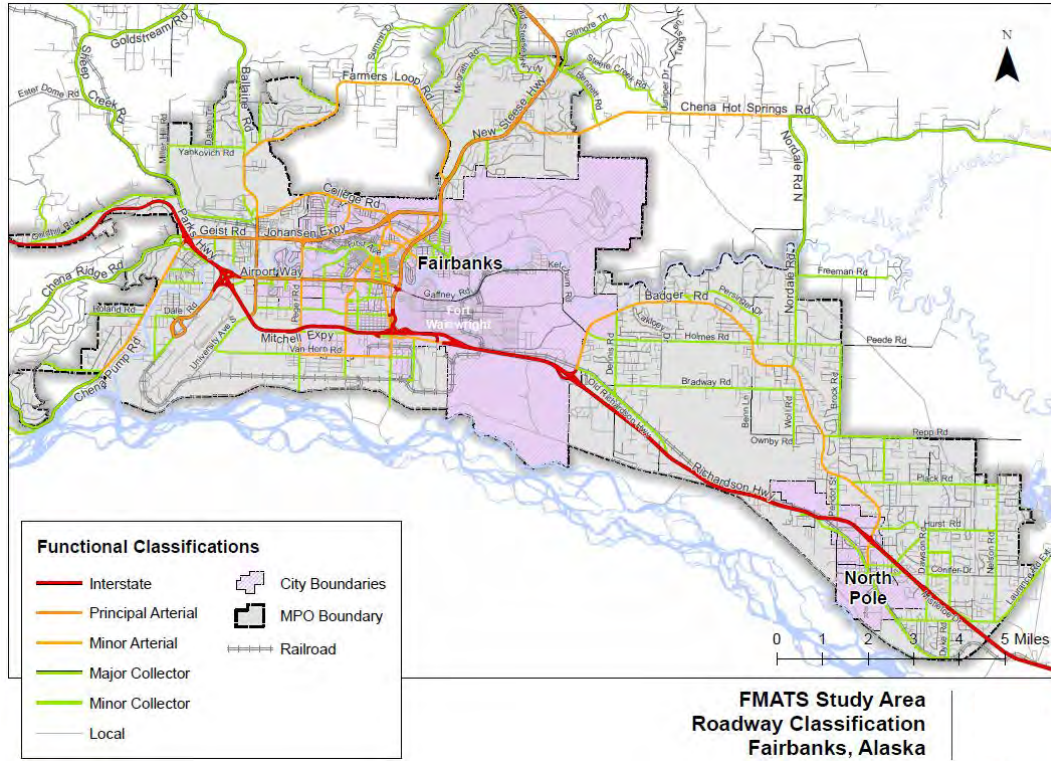


Figure 9: FMATS Road Classification Map, updated in 2018 with the Metropolitan Transportation Plan, Envision 2045. Map produced by Kittelson & Associates.

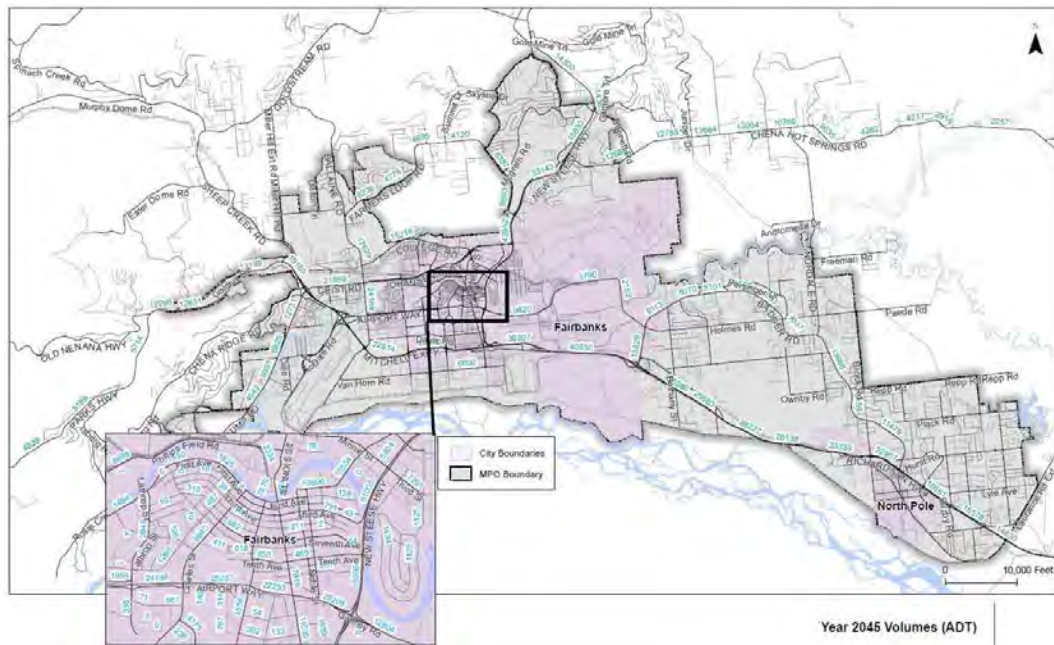


Figure 10: Map of year 2045 projected traffic volumes (ADT) in the FMATS study area from the Envision 2045 FMATS Metropolitan Transportation Plan. Map produced by Kittelson & Associates.

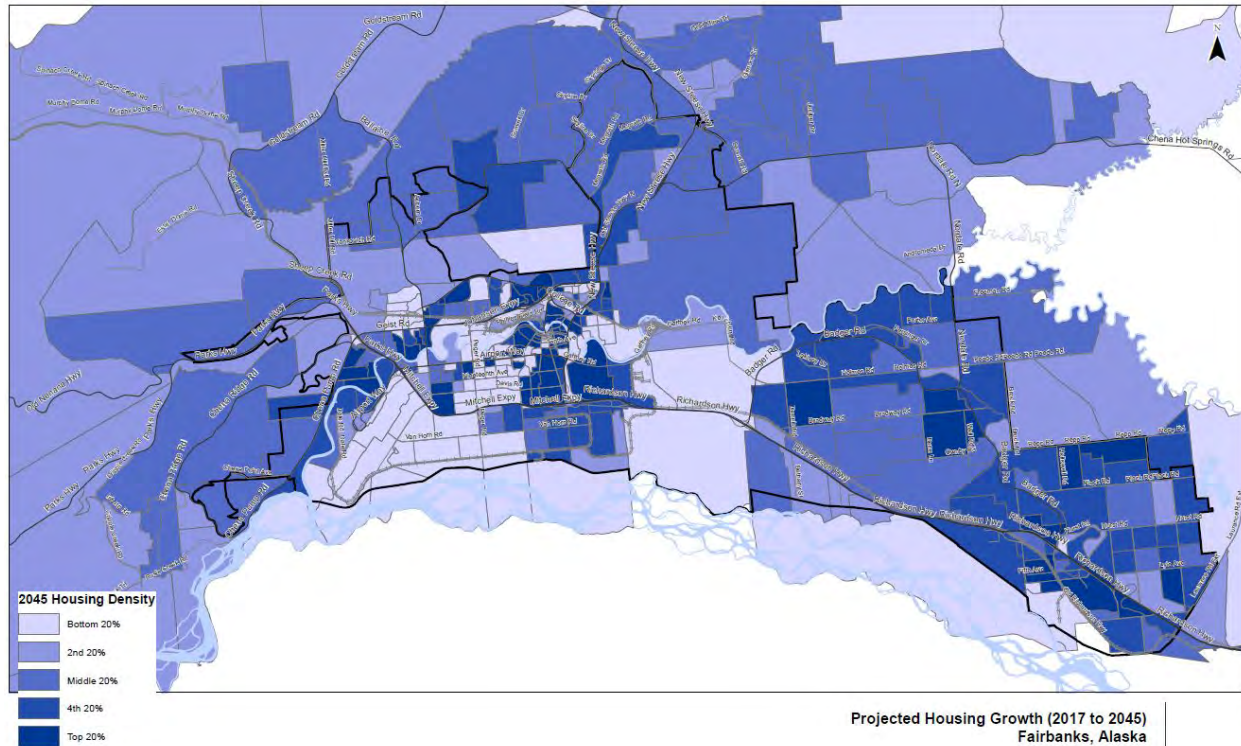


Figure 11: Map of Projected Housing Growth (2017 to 2045) in the FMATS study area from the Envision 2045 FMATS Metropolitan Transportation Plan. Map produced by Kittelson & Associates.

10. 2018 FNSB Eielson Air Force Base Regional Growth Plan

Synopsis: The Eielson Regional Growth Plan (RGP) assesses the potential impacts of an estimated 3,300 new residents moving to the FNSB as a result of the Air Force decision to station two squadrons of F-35 fighter jets at Eielson Air Force Base. The study process incorporates the best knowledge and resources from the FNSB planning, the Air Force, and local communities to assess impacts across a range of areas including transportation.

Relevance to the current effort: The RGP planning process integrates knowledge from other FNSB planning efforts and the active participation of the FNSB Planning team to minimize duplication of work and conflicts while providing new information and assessments for a rapidly growing area of the Borough. The study was completed in 2018 in concert with the 2019 Salcha-Badger Road Area Plan; these two plans contain recent information relevant to the Road Plan and focus attention on a rapidly growing area of the region.

The RGP states that though traffic modelling completed in the 2018 update of the FAST Planning MTP indicates that the current transportation network will be able to handle growth brought about by the F-35 bed down, this likely hinges upon the implementation of over 100 projects planned and approved through the MTP. The RGP recommends some reprioritization of these projects as well as improvements to specific locations such as intersections in the Badger Road area likely to be at or over capacity within the 20-year time horizon. The Badger/Nordale and Richardson/Peridot intersections are key examples. Considering the population growth and traffic projections as well as

the transportation improvements recommended in the RGP during the update of the Road Plan will be key to ensuring that the transportation network responds to the needs of a growing community near the regional economic driver of Eielson Air Force Base.

Key points of convergence/conflict: The RGP utilizes modeling tools and extensive data gathering efforts to provide an assessment of existing transportation infrastructure and projections of future transportation demands. The RGP references the FAST Planning MTP and State of Alaska Statewide Transportation Improvement Program (STIP) to highlight existing projects that will support road capacity and infrastructure upgrades in the greater North Pole/99705 zip code area. It recommends carrying out all of the projects planned in the MTP and STIP but emphasizes a renewed focus on North Pole area projects due to current and expected future growth.

Table 7: *Greater North Pole/99705 Zip Code Area transportation projects identified in the FMATS MTP and Alaska DOT&PF STIP and highlighted in the Eielson RGP that could be supported or developed through the subdivision process.*

2040 MTP Project Number (2015)	2045 MTP Project Number (2018)	Project Name
MR-4	MR-4	Dawson Road Extension (Hurst Road-Plack Road)
MR-27	MR-12	Richardson Highway Corridor Study: Badger Road to Eielson
MR-42	MR-65	Richardson Highway (NP) Alternate Route: Peridot Street-Laurance Road
LR-1	MR-13	Dennis Road Extension: North Pole
LR-22	LR-21	Richardson Highway: Access/Safety Improvements (Rozak Road-Peridot Street)
LR-3	VLR-3	Lyle Avenue Extension (Newby Road-Nelson Road)
VLR-3	VLR-20	Dennis Road/Lazelle Road Corridor: Steese Expressway/Johansen Expressway-Badger Road
VLR-23	VLR-27	Richardson Highway Area Roadway Improvements (Local Roads)

The final report is thorough, and the transportation chapter recommendations include the need to update the FNSB Comprehensive Road Plan. Specific recommendations include areas within the Road Plan that require updates (see page 157 of the RGP). The most pertinent of these recommendations that have not already been implemented include: (a) Reexamine and update road functional classifications (within current scope); and (b) “Establish Road Plan standards requiring appropriate pedestrian facilities (as called for in the comprehensive plan) that connect pedestrian routes within adjoining existing and future subdivisions. Create a better-connected system of trails, paths, and roadside walkways” (not currently included in the Road Plan update scope but being addressed through the FNSB Comprehensive Trails Plan update and the FAST Non-motorized Transportation Plan). Other recommendations from the RGP for the Road Plan have either already been implemented by the borough or are currently being addressed in separate planning efforts, including: (c) Identifying and upgrading orphan roads to standard so that they may join RSAs and serve the broader FNSB road network (being addressed through the FAST Planning RSA Study); (d) Requiring physical construction of roads in all new subdivisions within Fire Service areas (implemented through the 2019 FNSB Title 17 Code revisions); and (e) “Consider using the Salcha Badger Plan process to develop a revised Road

Plan map specific to the Salcha Badger sub-area” (the Salcha Badger Plan process did develop a roadway classification map for the sub-area).

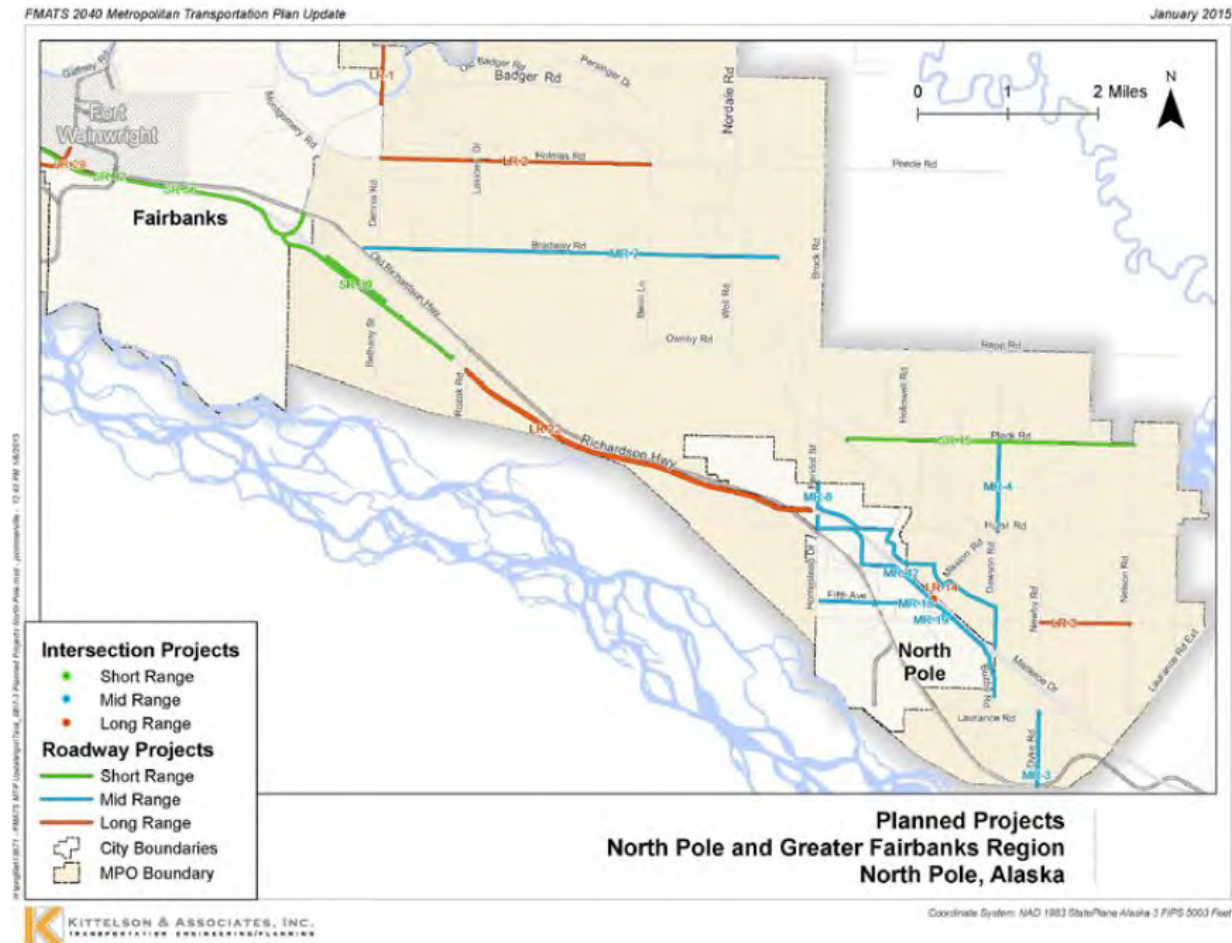


Figure 12: Planned transportation projects in the North Pole Area from the FMATS 2040 MTP Update. Map developed by Kittelson & Associates, January 2015.

Concluding Statement: Important document to guide policy and planned future corridors in the North Pole/99705 Zip Code and surrounding areas impacted by Eielson AFB-driven growth.

11. 2019 Salcha-Badger Road Area Plan

Synopsis: This area plan was developed in the context of expected accelerated growth in the project area due to the stationing of two new F-35 squadrons at Eielson Air Force Base. The impact of these squadrons is expected to be approximately 3,300 new residents in the FNSB. The area plan is supposed to provide a framework for development in the Salcha-Badger Road area within this growth context. The plan lays out vision and goals for community-supported development; recommended actions and policies to achieve those goals; identification of key issues with strategies and actions for land use, transportation, and housing; a guiding future land use map that will replace that of the study area from the 1984 FNSB Comprehensive Plan Land Use Map going forward; Roadway Classifications and New Residential Construction maps for the sub-area; and finally, implementation strategies.

Relevance to current effort: As a plan primarily focused on managing the impacts of population growth in the fastest growing area of the FNSB, the Salcha-Badger Road Area Plan is especially relevant to this update of the Comprehensive Road Plan. As growth in the area is likely to spur on land subdivision and development processes, this will require the creation of new road corridors to access that land for residential development. The land use framework map is important to consider, as this will guide the location of specific development types and densities in the area for years to come, impacting the location and classification of new access corridors. This sub-area plan builds upon the 2018 FNSB Eielson Air Force Base Regional Growth Plan to provide more focused analysis and recommendations for the rapidly growing Salcha-Badger Road corridor area.

Key points of convergence/conflict: There is a direct link between the Salcha-Badger Road Area Plan and the current effort, as the first strategy in the *Transportation: Roads, Sidewalks and Railroad Connections* section of the plan is to “Develop and regularly update a FNSB Roadway Corridor and Functional Classification Plan [Road Plan] to document existing roadways and the approximate location of future roadways.” Also, within this group of strategies is to “Improve the FNSB Subdivision Policy,” including ensuring that new roads are developed *at the time of subdivision* and to adopt improved roadway standards. Thus, the current planning effort is a direct result of recommendations outlined in the Salcha-Badger Road Area Plan.

Strategy (2d) in the “Roads, Sidewalks and Railroad Connections” group recommends adopting new subdivision standards to “promote interconnected streets and subdivisions with multiple access routes to improve safety, accessibility, mobility, emergency response, an reduce maintenance costs.” Strategy (2e) encourages “road alignments that integrate natural landscape features such as ponds, sloughs, and seasonally flooded wetlands, rather than roads laid out in a traditional cardinal-direction grid.” These recommendations are especially important to consider in updating the 1991 Road Plan maps and policies through the current process. The 1991 Plan included many planned corridors in the North Pole area laid out in cardinal directions along section line easements in low-lying and wetland areas. The Road Plan update provides an opportunity to re-evaluate whether some of these areas are still appropriate for road development, with improved topographic mapping technologies. Information gained through the ongoing update to the FNSB Land Suitability Analysis could also aid achievement of this objective. Improving emergency response and alternate access to subdivisions will likely be another key priority of the Road Plan update, based on community and responder concerns.

The “Salcha-Badger Road Area Future Land Use” map, “Roadway Classifications in the Salcha-Badger Road Area” map, and “Location of New Residential Construction in the Project Area, 2013-2018” map will also be helpful to the Road Plan update process to inform existing conditions analysis and aid in understanding the transportation implications of recent housing growth for subdivision and road development in the sub-area.



Figure 13: Roadway Classifications map from the Salcha-Badger Road Area Plan.

Concluding Statement: Likely to inform policy and study area expansion. No new corridors specifically identified in this plan.

12. 2019 Fairbanks & North Pole Storm Water Management Plan

Synopsis: The Storm Water Management Plan was developed to meet the regulatory requirements of the Alaska Pollutant Discharge Elimination System Permit No. AKS-053406 issued jointly to the City of Fairbanks, the City of North Pole, the University of Alaska Fairbanks, and the Alaska Department of Transportation & Public Facilities – Northern Region by the Alaska Department of Environmental Conservation. Preparation of the Storm Water Management Plan is a requirement of the National Pollutant Discharge Elimination System (NPDES) Permit originally issued to the above-mentioned co-permittees by the U.S. EPA. The coverage area of the permit and plan includes all areas of the Fairbanks urbanized area served by the municipal separate storm sewer system (MS4) maintained by the permit holders. The general intent of the MS4 permit and the Storm Water Management Plan is to minimize the impact of storm water runoff in the urbanized area on regional water quality as further urbanization and population growth occurs.

Relevance to current effort: While not providing any detailed transportation-related recommendations immediately applicable to the current planning process, the Storm Water Management Plan is a reminder of the need to consider stormwater, flood, and water quality impacts of new road corridor construction throughout the borough.

Key points of convergence/conflict: The Storm Water Management Plan reminds us that impacts of new road corridor construction on local hydrology should be seriously considered, especially within the flood hazard area or Flood Zone A, which experiences the 100-year flood. Alternatively, siting decisions for new road corridors can have serious implications for access in emergency situations when floods do occur. Many low-lying and flood-prone areas within the borough are also experiencing increasing development pressure especially in the Salcha-Badger Road area due to the ongoing F-35 squadron bed down at Eielson Air Force Base.

Concluding Statement: Could consider when developing policy.

13. 2019 FMATS Freight Mobility Plan

Synopsis: The Freight Mobility Plan is intended to provide a better understanding of current and future freight flows throughout the Fairbanks region and improve future freight mobility through infrastructure improvements and policy changes. The modes considered in the plan include truck, train, plane, ship, and pipeline.

Relevance to current effort: The Freight Mobility Plan is important to consider in the development of the Road Plan because of the clear linkages between “freight generating land uses” and the transportation system. The Freight Plan can guide decisions about future freight corridor development and the functional classifications of existing and future freight routes.

Key points of convergence/conflict: The plan identifies important freight land use zones and both primary and secondary freight routes in the Fairbanks urbanized area. In the ongoing road planning process, it will be essential to consider the impacts of freight corridors and zones on the road system.

For example, the Freight Plan identifies key freight issues and bottleneck areas, which can be taken into consideration in the Road Plan. There may be ways of improving some freight mobility issues through the identification of new, alternative freight corridors or functional classification changes.

The Freight Plan recommends that transportation infrastructure in and near freight zones and along freight routes be considered for freight-specific design standards. Some examples given are left turn lanes with longer storage length and medians that end before the crosswalk. It also recommends the designation of “official freight routes” to guide roadway design and maintenance. The Freight Plan creates two new roadway designations of “Primary Freight Route” and “Secondary Freight Route” and designates the following roads as such:

- Richardson Highway
- Steese Highway
- Van Horn Highway
- Peger Road
- Airport Way
- Geist Road
- Old Richardson Highway
- Johansen Expressway
- Parks Highway
- Mitchell Expressway
- South Cushman Street

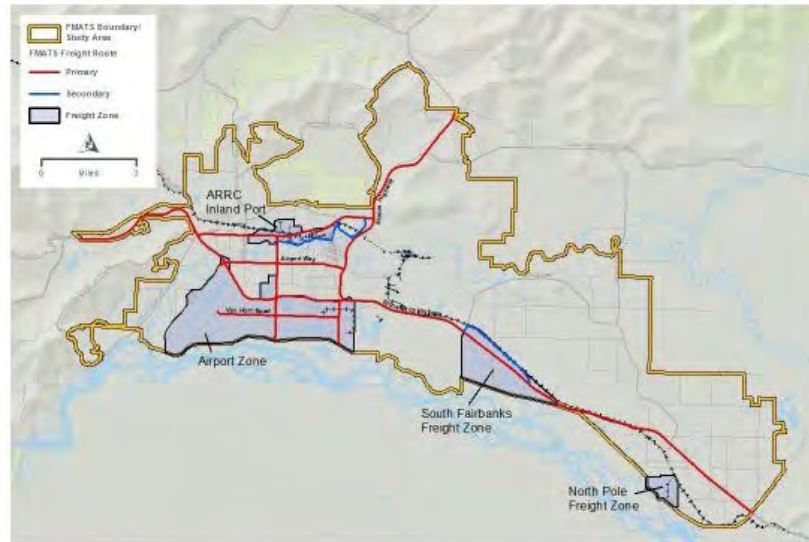


Figure 14: Freight Zones & Routes identified in the 2019 FAST Planning Freight Mobility Plan.

These routes should be given special consideration in the Road Plan to ensure that they meet the needs of freight mobility in the region going forward. The “Recommendations” section of the Freight Plan is also useful as it highlights key immediate- (0-10 years), medium- (11-15 years), and long-term (16+ years) freight-related transportation projects identified in the FAST Planning 2045 MTP, including some projects that may be supported or developed in the Title 17 subdivision process. These are identified in the Table below:

Table 8: Freight transportation projects drawn from the FAST Planning 2045 MTP that could be supported or developed through the subdivision process.

2045 MTP Project Number	Project Name
MR-65	Richardson Highway (NP) Alternate Route: Peridot Street-Laurance Road
LR-21	Richardson Highway: Access/Safety Improvements (Rozak Road – Peridot Street)
VLR-11	Chena Pump Road Connection
VLR-5	Goldizen Road Local Connections
VLR-7	University Avenue/Goldizen Signal (Phillips Field Road – Birch Lane)

The Plan also provides greater detail on improved freight policies including adopting officially designated truck routes, design standards, and maps for freight traffic.

Concluding Statement: Could inform policy and functional classification of roads. There were no new corridors identified in this plan.

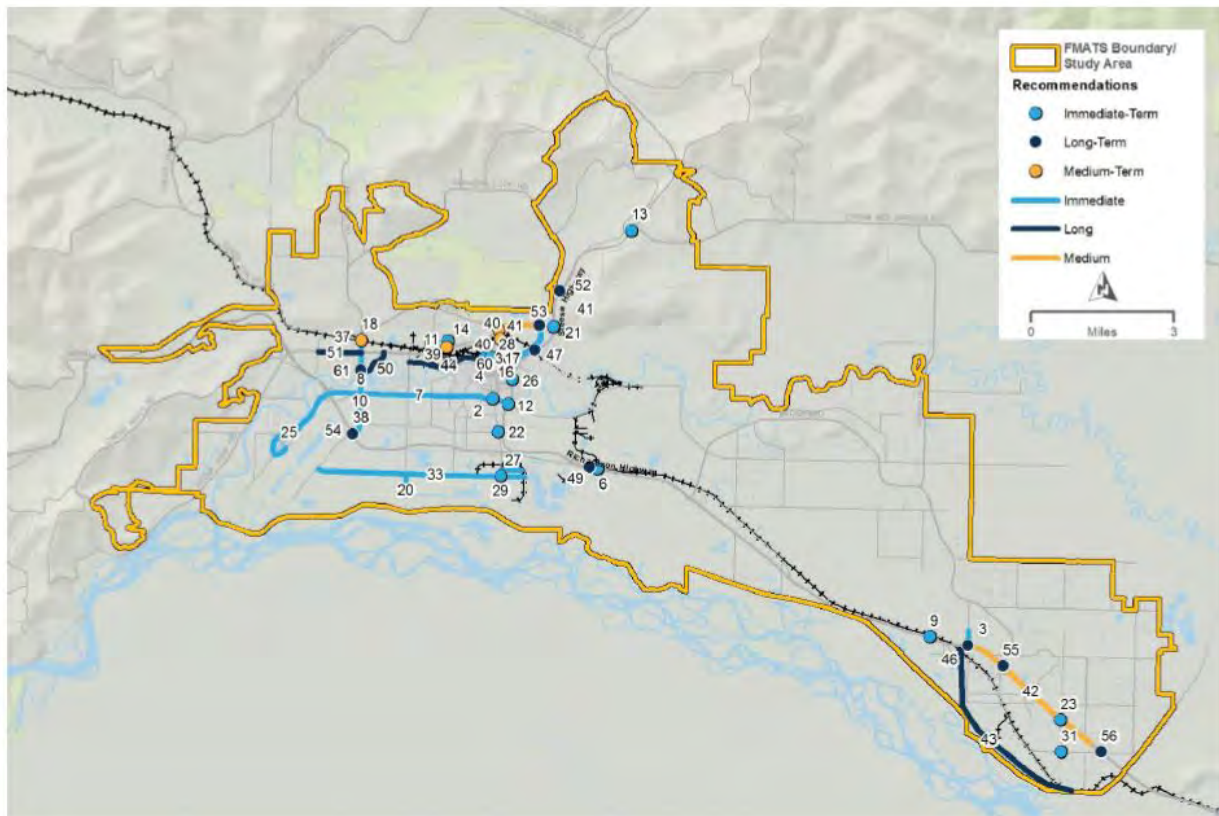


Figure 15: Project recommendations from the FAST Planning Freight Mobility Plan.

14. 2019 FAST Planning Green Streets Plan

Synopsis: The FAST Planning Green Streets Plan aims to “provide design recommendations for green infrastructure facilities...suited to the Fairbanks environment and...site-specific green infrastructure recommendations for incorporation into select future projects in the MPA.” The Plan outlines design considerations and facility details relevant to Fairbanks’ cold climate and local hydrology and includes an overall site location map and typical right-of-way cross-sections visualizing each location recommended for green infrastructure upgrades.

Relevance to current effort: With FAST Planning’s emphasis on promoting sustainable storm water management through its Green Streets Policy and Plan, consideration should be given to road corridor projects within the MPA that could potentially benefit from green storm water infrastructure (GSI) interventions, similar to those laid out in the Green Streets Plan.

Key points of convergence/conflict: While all recommendations for green infrastructure elements in the Plan are centered in the urban core area of the City of Fairbanks and the City of North Pole, as the Borough continues to grow and urbanize additional right-of-way locations may also become suitable candidates for sustainable storm water designs. If the potential for Green Streets interventions is at least considered as a future potentiality from the outset of road corridor policy, siting and design through the Road Plan, this could abet a more sustainable road network for the Fairbanks region in the future.

Concluding Statement: Limited relevance to the current effort. Could potentially influence policy in the future as the impervious (paved) road network expands.

15. 2020 FNSB Storm Water Management Plan

Synopsis: Similar to the Fairbanks and North Pole Storm Water Management Plan, the FNSB holds its own separate permit through the Alaska Pollutant Discharge Elimination System (Permit No. AKS-053414). Much of the discussion from the literature review section of the cities’ Storm Water Management Plan applies here as well. The FNSB coordinates closely with the permittees from the Cities, University of Alaska-Fairbanks, and Alaska DOT&PF Northern Region on stormwater system mapping and educational activities required by the MS4 Permit.

Relevance to current effort: While not providing any detailed transportation-related recommendations immediately applicable to the current planning process, the Storm Water Management Plan is a reminder of the need to consider stormwater, flood, and water quality impacts of new road corridor construction throughout the borough.

Key points of convergence/conflict: The Storm Water Management Plan reminds us that impacts of new road corridor construction on local hydrology should be seriously considered, especially within the flood hazard area or Flood Zone A, which experiences the 100-year flood. Alternatively, siting decisions for new road corridors can have serious implications for access in emergency situations when floods occur. Many low-lying and flood-prone areas within the borough are also experiencing increasing residential development pressure especially in the Salcha-Badger Road area due to the ongoing F-35 squadron bed down at Eielson Air Force Base.

Concluding Statement: Could consider when developing policy.

16. 2021 FAST Planning Non-motorized Transportation Plan Update (*DRAFT*)

Synopsis: The Non-motorized Transportation Plan “envisions an independent future for all Fairbanksans through transportation network improvements, supportive agency programs, and policies that benefit pedestrian and bicycle travel and connect people with public transit.” The Plan update lays out five primary goals to support this vision including: 1) planning for, providing and promoting a non-motorized system that is continuous, accessible, reliable and safe; 2) planning for and providing a non-motorized transportation system that links individuals to essential services and locations; 3) creating policies that support year round use of the non-motorized transportation system; 4) increasing awareness of the non-motorized transportation system and mobility options; and 5) developing, funding and promoting a list of prioritized capital improvement projects that implement the plan.

Relevance to current effort: In order to support the goals and implementation of the FAST Planning Non-motorized Transportation Plan, non-motorized facilities such as sidewalks and bike lanes should be considered as potential components of all new road corridors in the Road Plan. Additionally, official standards for non-motorized transportation infrastructure could be created and added to the associated in-development Road Standards Manual and FNSBC Title 17 Functional Classification categories.

Key points of convergence/conflict: The project map and prioritized project list of non-motorized transportation projects in the metropolitan area are helpful to understand where coordination may need to occur. For example, the Non-motorized Transportation Plan provides a wealth of information into key areas of pedestrian and cyclist activity on existing road corridors. This analysis can provide insights about potential functional classification and road standard requirements of both existing and future, similar corridors, to ensure that they can handle non-motorized traffic as well as passenger vehicles and freight.

Concluding Statement: Could inform policy and possibly functional classification of roads.

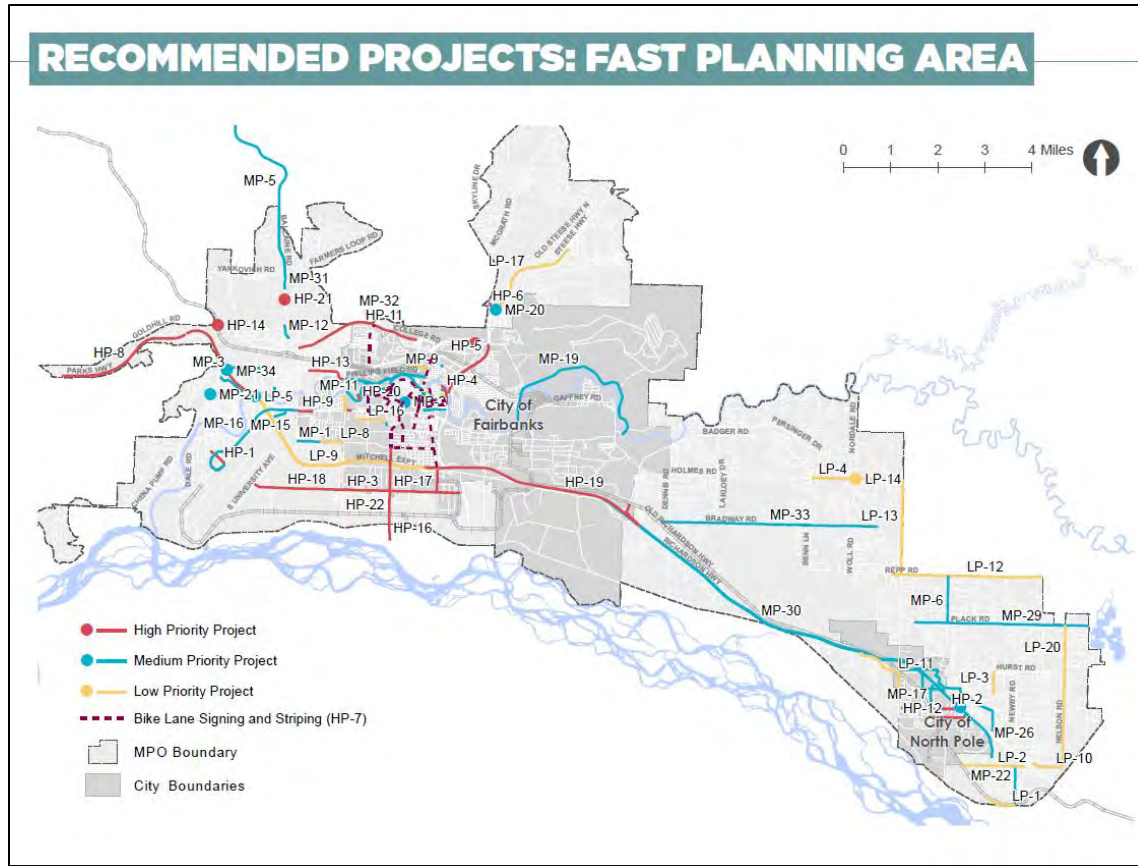


Figure 16: Projects recommended in the Draft FAST Planning Non-motorized Transportation Plan Update. Source: FAST Planning.

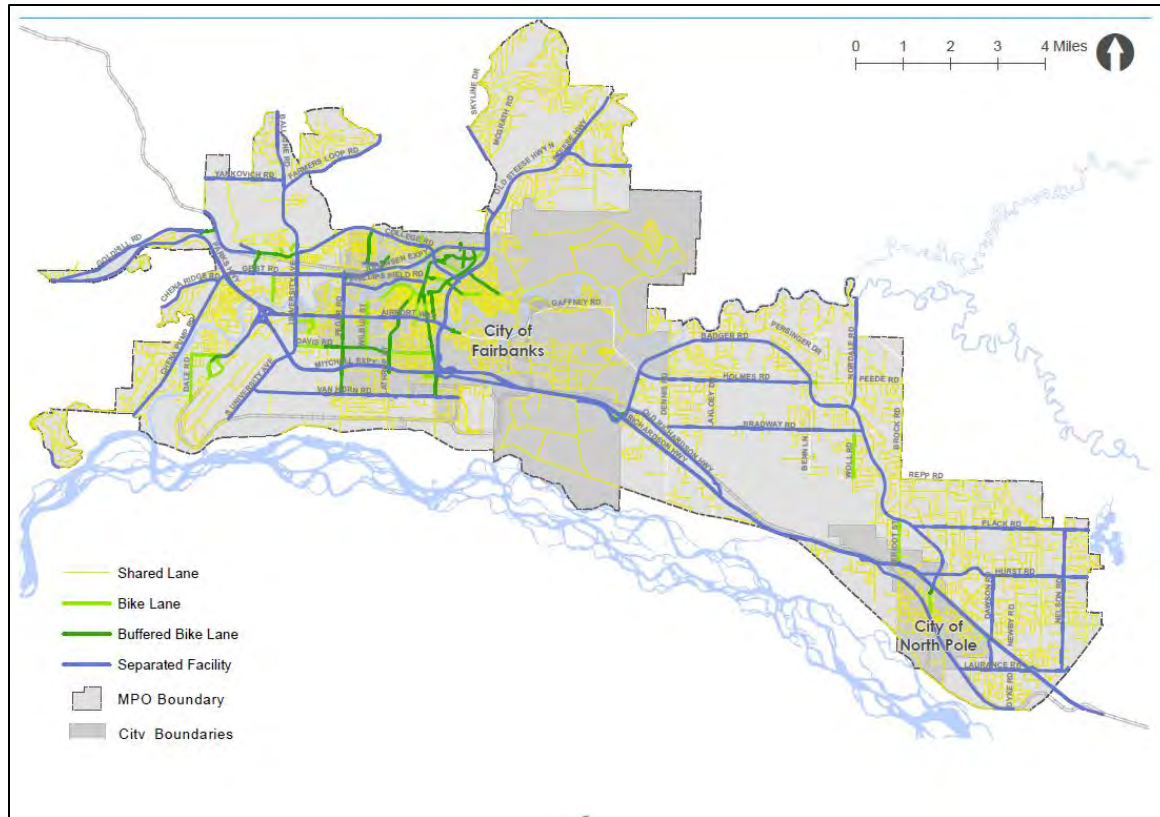


Figure 17: Recommended bike facility network in the Fairbanks region from the Draft Non-motorized Transportation Plan update. Source: FAST Planning.

17. 2021 FAST Planning Fairbanks Road/Rail Crossing Reduction/Realignment Plan

Synopsis: The ongoing FAST Planning Fairbanks Road/Rail Crossing Reduction/Realignment Plan (Road/Rail Plan) is meant to serve as a long-term planning document to support and encourage FAST Planning and its partner agencies in implementing a more effective approach to road/path and rail crossings in the Fairbanks area. The plan’s goals include improving safety, reducing congestion, expanding economic development opportunities, and increasing network efficiency. Though removing and relocating the rail line from central Fairbanks and North Pole has been studied since the 1980s, the plan does *not* aim to focus on that issue, but rather provide more immediate recommendations for priority improvements to the existing at-grade crossings. At the time of this writing, the Road/Rail Plan Draft Existing Conditions Report, a first step in the process, has been released for public review.

Relevance to current effort: The Fairbanks region’s many (~65) at-grade road/rail crossings appear as a key issue in nearly all of the area’s transportation-related planning documents over the past several decades. This is due to the significant negative impacts that these crossings pose for road network safety and efficiency.

Key points of convergence/conflict: The Road/Rail Existing Conditions report identified 27 of the 65 existing at-grade road/rail crossings in the Fairbanks area for further analysis and public input. The Existing Conditions report will be reviewed by the public and ten to twelve crossings will ultimately be prioritized for alternatives analysis and development. As this planning process progresses and final alternatives are developed, considerations should be made to align these outcomes with the Road Plan as needed, especially if they have implications for existing or future corridors. The Road Plan may be a mechanism to support the Road/Rail Plan and its implementation by identifying areas where existing road corridors can be realigned to eliminate or improve the safety of existing at-grade crossings. Every effort should be made to avoid adding additional at-grade road/rail crossings for any future corridors proposed in the Road Plan. Tables 1 and 2 of the Road/Rail Existing Conditions Report are a helpful resource for identifying where existing roads in Fairbanks and North Pole intersect the various branches of the Alaska Railroad system.

Every effort should be made to avoid adding additional at-grade road/rail crossings for any future corridors proposed in the Road Plan. Tables 1 and 2 of the Road/Rail Existing Conditions Report are a helpful resource for identifying where existing roads in Fairbanks and North Pole intersect the various branches of the Alaska Railroad system.

Fairbanks Crossings								
Street/Road Name	Rural or Urban	Roadway Type	Number of Lanes	Surface	Highway Speed Limit (mph)	AADT	Estimated Percent Trucks	Maintenance Responsibility
ARR Access Road	Urban	Local	2	Pavement	15	50	50	Unknown
Badger Road	Urban	Minor Arterial	4	Pavement	40	9,000	10	DOT&PF
Baptist Church Driveway @ Old Richardson Highway	Rural	Local	1	Gravel	25	50	2	Unknown
C Street	Urban	Minor Collector	2	Pavement	25	1,200	25	COF
Charles Street	Urban	Local	2	Pavement	25	600	8	COF
Club 11 Driveway @ Richardson Highway	Rural	Local	2	Gravel	25	200	5	Interior Investment Group, LLC
College Road	Urban	Minor Arterial	4	Pavement	35	19,500	5	DOT&PF
Commercial Driveway Near Richardson Highway	Rural	Local	1	Gravel	25	20	20	Frontier Equipment Co
Dennis Road	Urban	Major Collector	2	Pavement	25	2,500	10	DOT&PF
Driveway @ Richardson Highway (3-Mile Gate)	Urban	Local	2	Pavement	25	500	12	DOT&PF
Driveway Street	Urban	Local	2	Pavement	10	500	25	COF

Figure 18: Part of Table 1 from the FAST Planning Road/Rail Crossing Reduction/Realignment Plan Existing Conditions Report, showing Fairbanks at-grade rail crossings. Source: FAST Planning.

A desktop GIS analysis using the Road Plan Corridors dataset and

Rail ROW dataset revealed only a few locations where road corridors proposed in the 1991 Plan would potentially create new rail crossings if developed. Both of these instances occur in Township 1S 1E (Map Panel 211 of the 1991 Road Plan maps), along the Eielson Branch of the Alaska Railroad Corporation (ARRC) rail line. These potential future road/rail crossings occur east of Badger Road/New Richardson Highway Interchange and west of Benn Road where the ARRC right-of-way runs immediately adjacent to the Old Richardson Highway. A proposed minor collector along the ARRC ROW between Rozak Road and Rentals Road could add at least one additional at-grade rail crossing. Additionally, a connection between Bradway Road and the Old Richardson could also add an additional at-grade rail crossing if fully developed. See Figure 19 below.

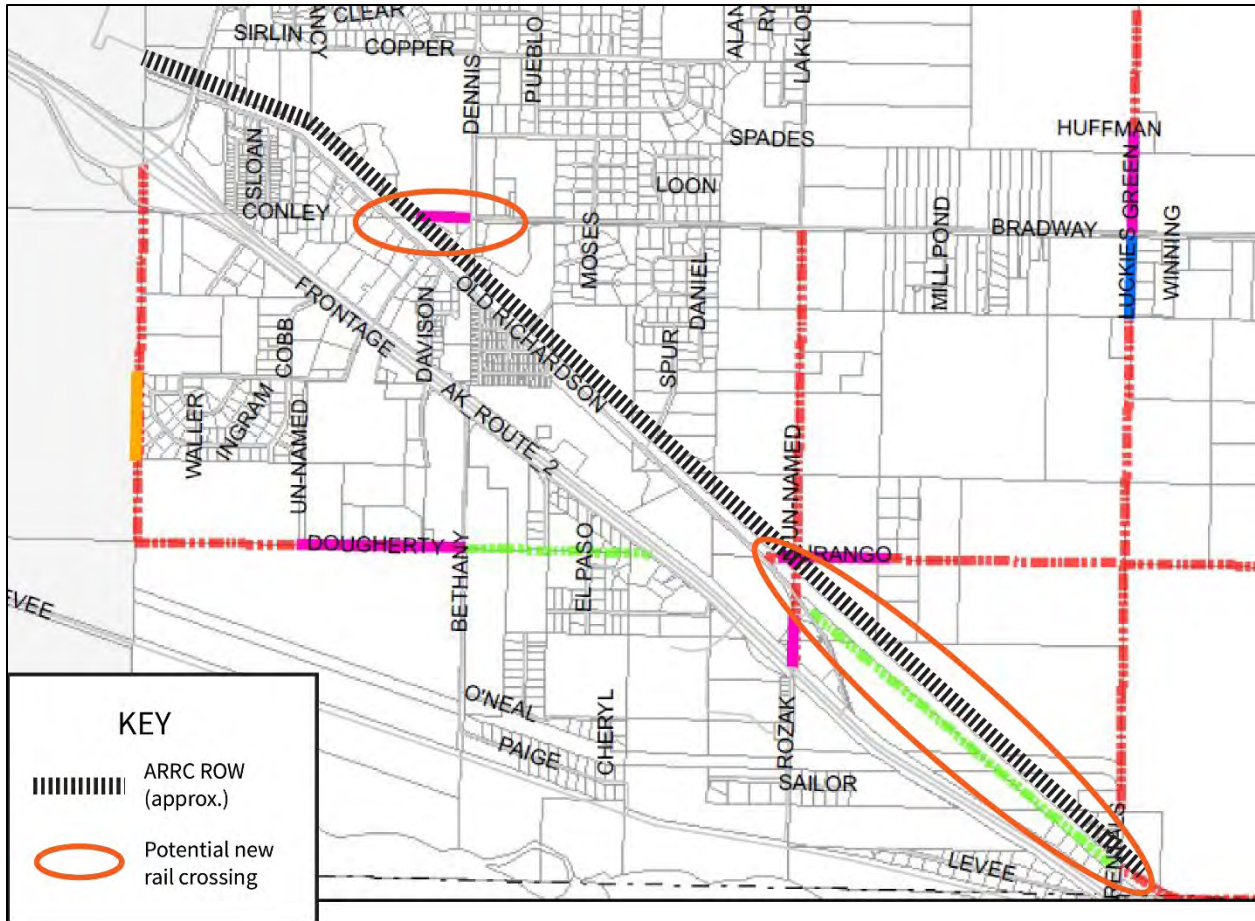


Figure 19: Potential additional road/rail crossings as a result of planned corridors in the 1991 Road Plan. Source: FNSB Comprehensive Road Plan, 2006 mapping update and PDC Engineers.

Concluding Statement: Important coordination document that can inform future corridor placement to minimize road/rail crossings in the Fairbanks and North Pole area.

18. 2021 FAST Planning Road Service Area Expansion Plan

Synopsis: This ongoing project is evaluating potential strategies and solutions to reduce the number of Road Service Areas (RSAs) in the FNSB, extend road maintenance to unmaintained and often substandard “orphan roads,” develop a stand-alone Road Standards Manual (RSM) for the Fairbanks urbanized area, and streamline overall RSA administration. The project involves technical and GIS-based analysis of the Borough’s existing 103 RSAs and numerous orphan roads to develop a preferred protocol to extend RSA coverage to orphan roads through annexation or other means. The project also involves development of an incentive program structure to support annexation of orphan roads into RSAs.

Relevance to current effort: While the RSA annexation-related aspects of this plan are not directly related to the Road Plan, the Road Standards Manual being developed through the RSA project is closely related to the FNSB functional classification system. The RSM outlines the design standards for roads in each of the 8 functional classifications defined in FNSBC Title 17.

Key points of convergence/conflict: The RSA Expansion Plan will deliver a stand-alone Road Standards Manual for the FNSB with updated design and construction criteria for each road functional class defined in FNSBC *Title 17 – Subdivisions*. It will have a direct influence on the specifications to which roads in the FNSB are built.

Concluding Statement: This study could help drive policy to improve and support consistent long-term maintenance for the roads planned in the comprehensive Road Plan.

III. Road Network Existing Conditions

Updated Map Sets of the Comprehensive Road Plan Official Maps are included as Appendices A-C with the submittal of this Technical Memorandum. Appendix A is the Comprehensive Road Plan Map Key, showing the existing study area of the 1991 Road Plan by Township. Appendix B is the updated existing Functional Classifications Map Set. Appendix C is the Existing Conditions Map set, developed through GIS analysis that categorizes roads in the existing study area into four categories based on the status of being a planned corridor, having right-of-way dedication, and being a physically constructed road. These four categories are described in detail in the following Methods section.

These maps are a useful starting point to understanding existing conditions of the road network and to pinpoint specific areas where right-of-way has or not been dedicated, where road construction has occurred, and where built road corridors may not match up with their 1991 Plan proposed locations due to topographical factors unknown at the time. In the current Road Plan update project scope, the maps that appear in the 1991 Roads Plan will likely be expanded to cover additional areas of growth since 1991, current ongoing development, and areas of expected future growth.

A. Existing Conditions Analysis Methods

The existing conditions mapping was conducted with ArcGIS 10.8.1. Datasets utilized in this analysis are included in Table 9 below.

Table 9: GIS data sets used in existing conditions analysis for the Road Plan update.

File	Type	Comments
Road Centerlines	Polyline	Functional classification attributes incorrect below ‘major’ collector
Parcels	Polygon	Tax info included
2020 Pictometry Aerials	Raster	High resolution
Road Plan Corridors	Polyline	Identified as ‘major’, ‘minor’, and ‘future study’

Using this information, we created four categories of existing conditions:

- A. Planned roads with dedicated ROW but no constructed road
- B. Planned roads with constructed roads but no dedicated ROW
- C. Planned roads without dedicated ROW or a constructed road
- D. Planned roads with dedicated ROW and a constructed road

Category D roads can be considered fully developed (or completed) since the 1991 plan.

To identify roads for each category, we implemented a multi-step analysis with ArcGIS. First, we identified all of the constructed roads in the borough using the ‘Constructed?’ attribute in the Road Centerlines file. These roads were then overlain on the parcel dataset to identify roads within an established ROW. The PAN attribute in the parcel data was used to identify ROW. Finally, the Road Plan Corridors dataset was added, and we manually identified overlapping layers for each of the four categories. The figure below shows dedicated ROW (yellow), Road Plan Corridors (green), and a constructed road (blue). The road in question, Haman Road, falls into Category D since it was planned in the 1991 Road Plan, has a fully dedicated ROW, and has been physically constructed.



Figure 20: An example of the existing conditions analysis process. A planned corridor from the 1991 Road Plan (green) has a different built alignment (blue) and right-of-way (yellow) than proposed in the plan. This is due in part to on-the-ground topographical conditions and an alternative subdivision design accepted by the FNSB Platting Board that met the same requirements as the planned corridor. Source: PDC Engineers.

In Figure 20 above, Haman Road was constructed along a different alignment than the 1991 Plan proposed corridor, likely due in part to the topography of the area. An alternative subdivision design was accepted by the FNSB Platting Board because it met the same requirements as the planned corridor (green line in Figure 20) from the 1991 Road Plan.



Figure 21: Haman Road constructed, looking north from Roland Road. Inset: the Koponen Homestead subdivision, through which Haman Road was developed. Source: PDC Engineers.

B. Existing Conditions Findings

Based on initial analysis using ESRI ArcGIS and the methods described above, the following statistics have been identified that describe the existing conditions of the road network as it pertains to planned corridors, dedicated ROW, and road construction since the 1991 Plan.

Based on the categories defined above in the Methods section, within the existing study area of the 1991 Road Plan, there are currently:

- A. 4.1 miles of planned roads with dedicated ROW but no physical road constructed.
- B. 29.3 miles of planned roads with physically constructed roads, but no dedicated ROW.
- C. Approximately 150 miles of planned roads without dedicated ROW or a physically constructed road.⁹
- D. 21.1 miles of planned roads with dedicated ROW *and* a physically constructed road; this is the mileage that can be considered ‘completed since 1991’.

C. Why Roads May Be Added or Removed from the Plan

In the ongoing update process to the 1991 Road Plan, the study area of the Road Plan may be changed, resulting in roads being retained, added, or removed from the plan. The planning team and borough Staff will work closely to determine which areas of growth may warrant expansion of the Road Plan study area, and if there are any situations where an area or corridor should be removed from the Plan. Public input from the Road Plan Steering Committee and public involvement events will also inform this analysis. Justification for the decision to add or remove roads or areas from the study area and plan will be documented throughout the planning process.

The primary reason that an area may be added to the Road Plan that was not originally included in the study area of the 1991 Plan is current and expected future development and growth. Because as a second-class borough the FNSB develops its road system in partnership with developers through the land subdivision process, it is essential that the borough plan for corridors in areas that may experience future growth. Without the power to build and maintain its own roads, the opportunity to ensure the public’s interest in a road corridor and construct it to a desirable standard occurs at the time of developer-initiated land subdivision. Through the exactions process, the FNSB and developers work together to ensure that sufficient public infrastructure (in this case, roads) are provided to support the new residents who will eventually move into the area. A preliminary analysis of existing conditions in this process and review of previous plans has revealed strong areas of current and expected future growth and subdivision activity in several parts of the FNSB, including in the North Pole/99705 zip code and on the westside of Fairbanks. The Road Plan study area could be expanded to include these areas of growth.

There are several scenarios in which a corridor may be removed from the Road Plan. For example, a more detailed understanding of local topographical conditions gained through improved LiDAR and mapping technologies since the 1991 Plan will help identify planned corridors that may not actually

⁹ This number will be updated through the current Road Plan process.

be feasible for construction. The current process allows for these corridors to be changed, shifted, or removed from the Plan and for more feasible alternative corridors to be identified.

There are several reasons to retain a planned road corridor in the Plan. Road development through the Title 17 subdivision process and **Development exactions** necessitates that roads are most often developed in an incremental manner along planned corridors as the adjacent land subdivides. Multiple subdivisions and developers contribute to this process of incremental **Dedication** and road construction over time. Planned road corridors that have not yet been fully dedicated or constructed (Category A) are likely to be retained in the Road Plan update. Additionally, if a road corridor identified in the 1991 Plan has been physically constructed but legal right-of-way has not been acquired for whatever reason (Category B), such a road is also likely to be retained in the updated Plan to facilitate acquisition of the right-of-way and to secure the public's interest in the road in the future.

IV. Conclusions

Since its adoption in 1991, the FNSB Comprehensive Road Plan has played an integral role in shaping the development of subdivisions and the road network in the borough. The FNSB Roads Plan was last updated in 1991, and the maps were updated in 2006. The 2010 Alaska DOT&PF Functional Classifications are slated for an update in 2022. Updating the FNSB Road Corridor & Functional Classification Plan provides the local planning authorities with up-to-date information in advance of the DOT&PF effort. This is critical to formulating effective responses during the required local review stage of the upcoming DOT&PF Classification process.

Straddling the line between a long-range plan and an implementation plan, the Comprehensive Road Plan serves the purpose of managing land access, right-of-way dedication, and road development through the FNSB's codified subdivision process. An integral piece of this process is the FNSB's official functional classification system as defined in FNSBC Title 17 Section 56.070. The purpose of the FNSB's functional classification system is to guide subdivision design, manage direct lot access, and facilitate the right-of-way dedication and road construction processes in the borough. This stands in contrast to the Alaska DOT&PF functional classification system which focuses primarily on road design and construction standards. The FNSB's functional classification system is applied to borough roads in the Roads Plan, which is in turn implemented through FNSBC Title 17 Section 56.110 "Connections with existing and future development." FNSBC Title 17.56.110 Subsection (A), states: "The alignment of subdivision streets shall conform to the comprehensive road plan adopted by the Fairbanks North Star Borough assembly."

There have been many changes in the FNSB since the last study of road corridors and functional classifications. Individual planning efforts summarized in this report examined specific areas, modal requirements, and safety concerns. A focused borough-wide assessment of road corridors and functional classifications will correlate data and recommendations from these studies and supplement with newly acquired LiDAR, FNSB GIS, Alaska DOT&PF's centerline GIS dataset and 2020 Pictometry aerials to identify discrepancies, update maps and propose corridors and classifications.

This review of recent plans informs the process by highlighting individual, community, or area concerns, visions for future development and desire for multi-modal access. Development of non-

motorized transportation corridors feature prominently in some recent documents. Traffic safety recommendations, updated road design standards, and policies detailed in these plans provide additional information to assist the planning team in making meaningful recommendations.

The Fairbanks North Star Borough has experienced significant growth over the years since the adoption of the 1991 Comprehensive Road Plan, notably from the early 1990s through 2010. From 2006 to 2009, the Fairbanks metro area was identified as the fastest-growing ‘small town’ in America (Forbes 2010) while most of the nation was experiencing high unemployment and economic stagnation. The FNSB’s growth during this time is attributed to consistent military and institutional investments, mining, retail, and service economy expansions.

Population increases and traffic flows are being influenced in unexpected ways by the 2016 announcement of the F-35 Bed down at Eielson Air Force Base. The 2018 FNSB Eielson Air Force Base Regional Growth Plan predicted over 3,300 new residents, locating primarily in the North Pole/Badger Road/Salcha area. Restrictions imposed by the COVID-19 pandemic are reported to have slowed the influx of new personnel and residents anticipated in earlier studies. Review of actual residential building and subdivision development will help verify and/or revise the areas of anticipated growth and increased traffic. Traffic counts are currently impacted by work from home restrictions and school closures. Considering the impacts of these anomalies will be a necessary part of the study process.

The FNSB covers 7,361 square miles, has two cities, 15 census-designated areas, and two unincorporated communities. The roads, like the population, are diverse, spread over a large area, and require a wide variety of transportation options. Understanding the assorted needs, gathering verifiable data, and presenting logical options for classifications and corridors will be critical to the success and acceptance of this important plan.

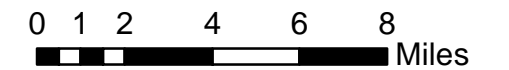
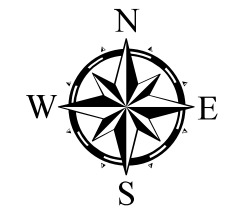
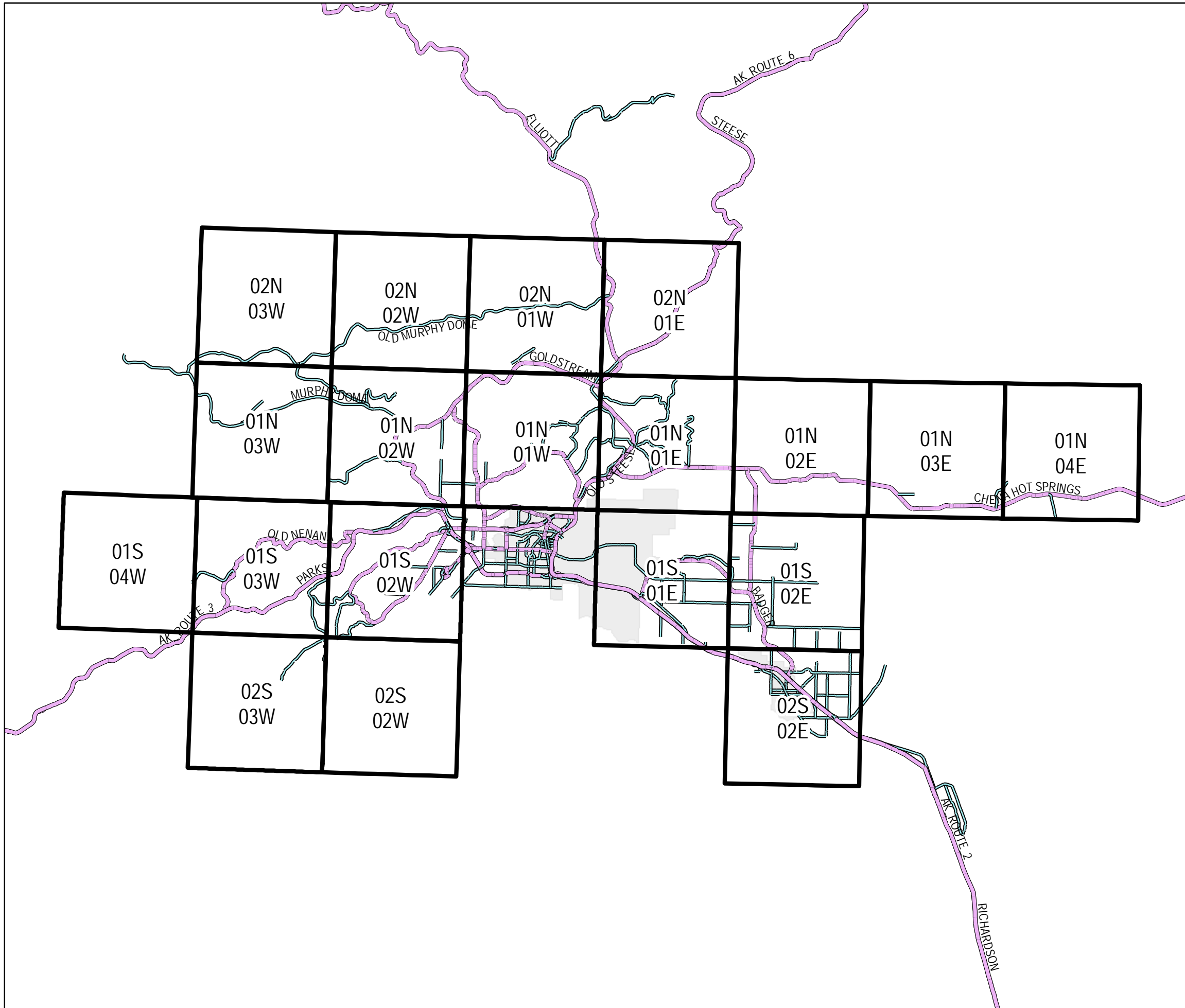
APPENDIX A

Comprehensive Road Plan Map Key – Existing study area.



Comprehensive Road Plan

Map Key



APPENDIX B

Existing Functional Classifications Map Set

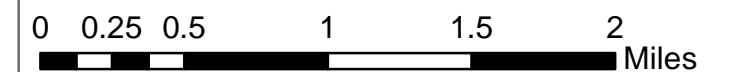
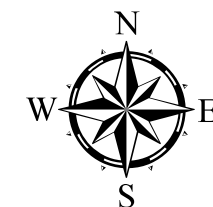
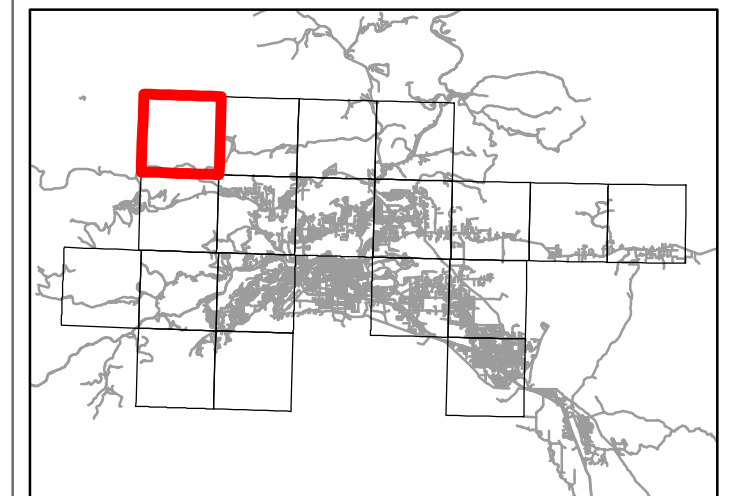


Comprehensive Road Plan

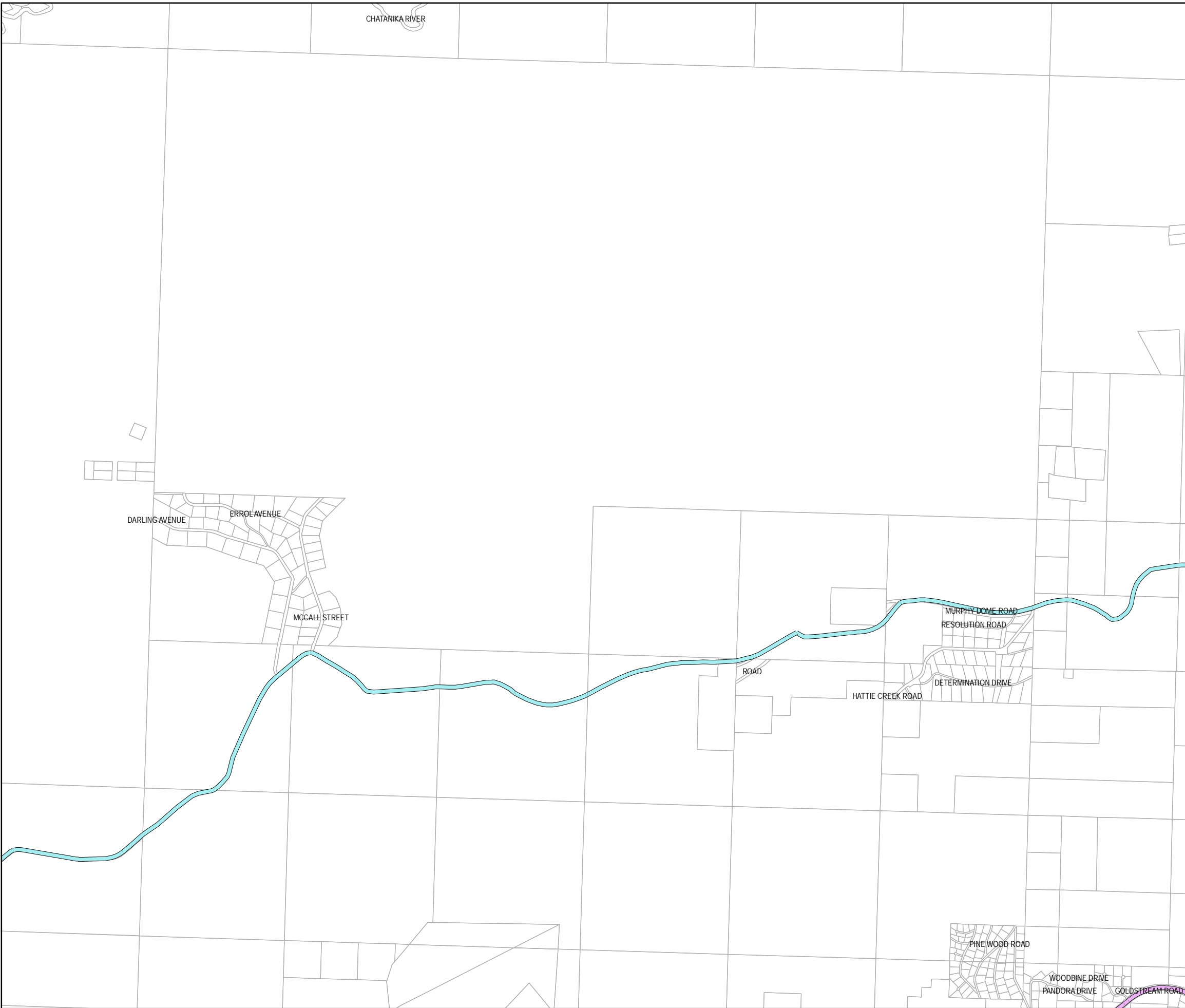
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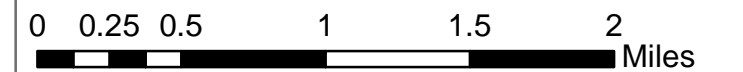
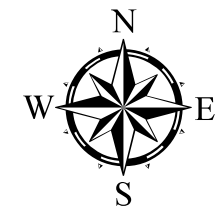
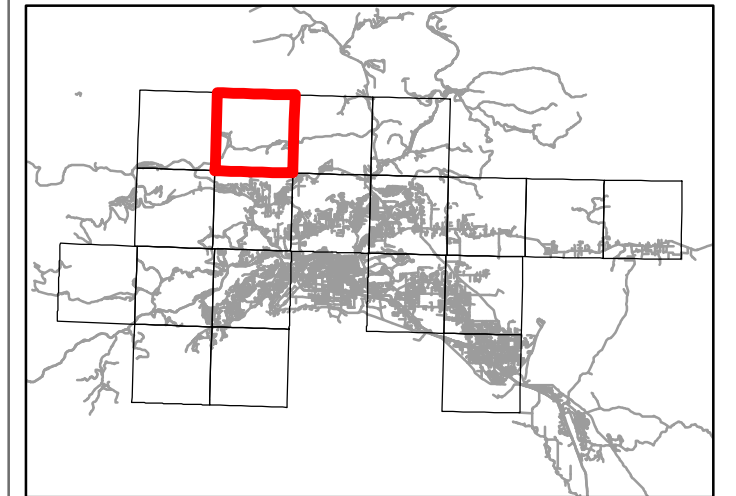


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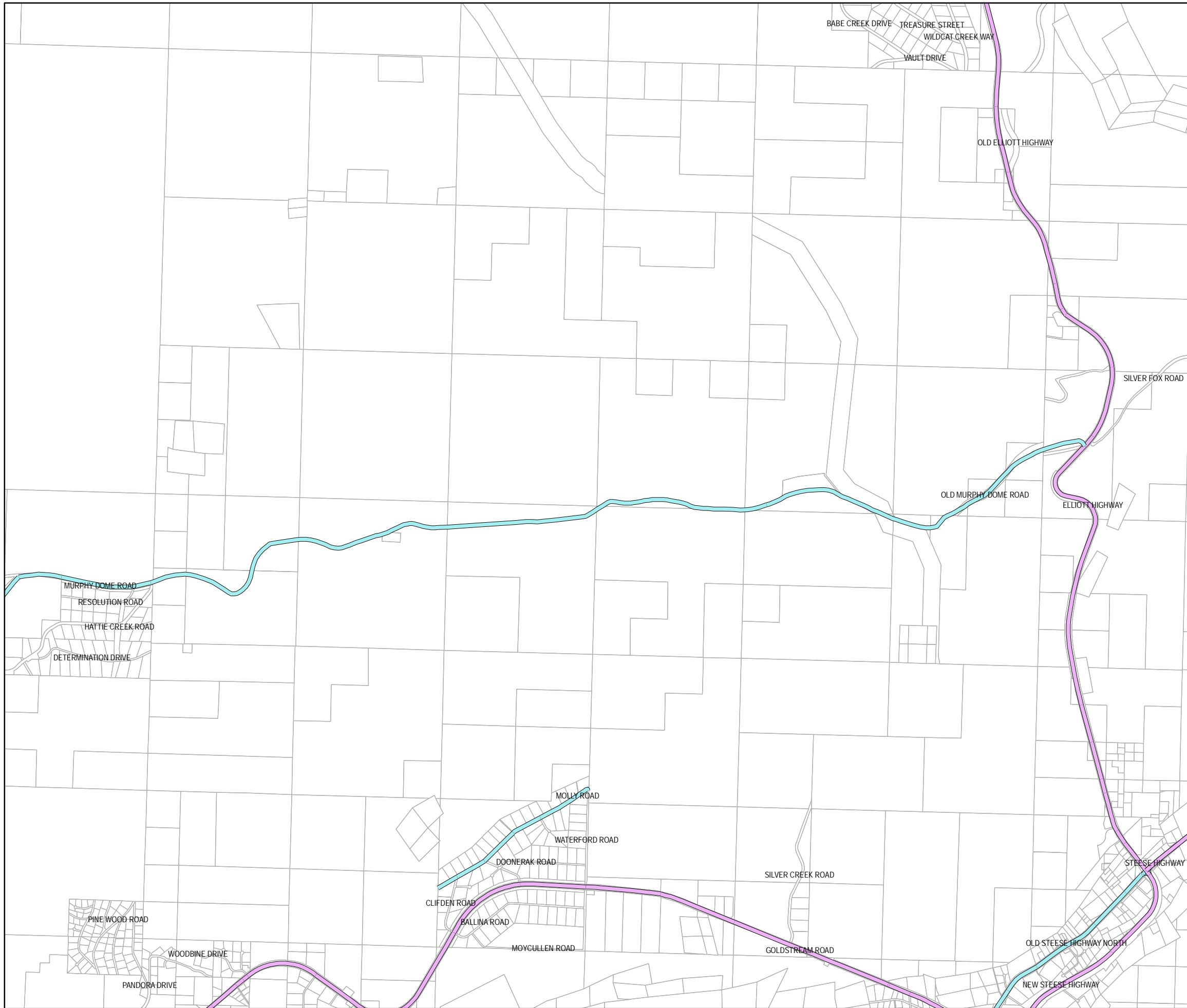
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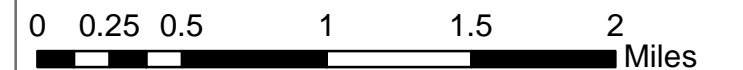
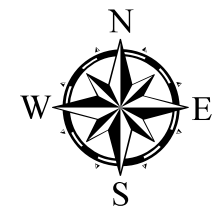
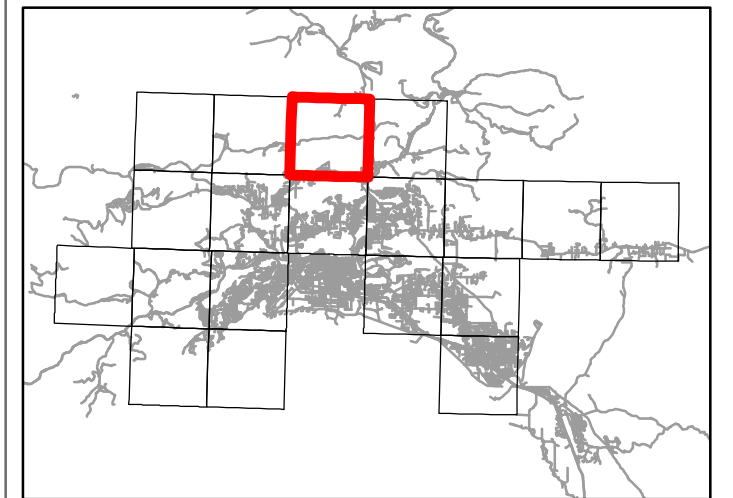


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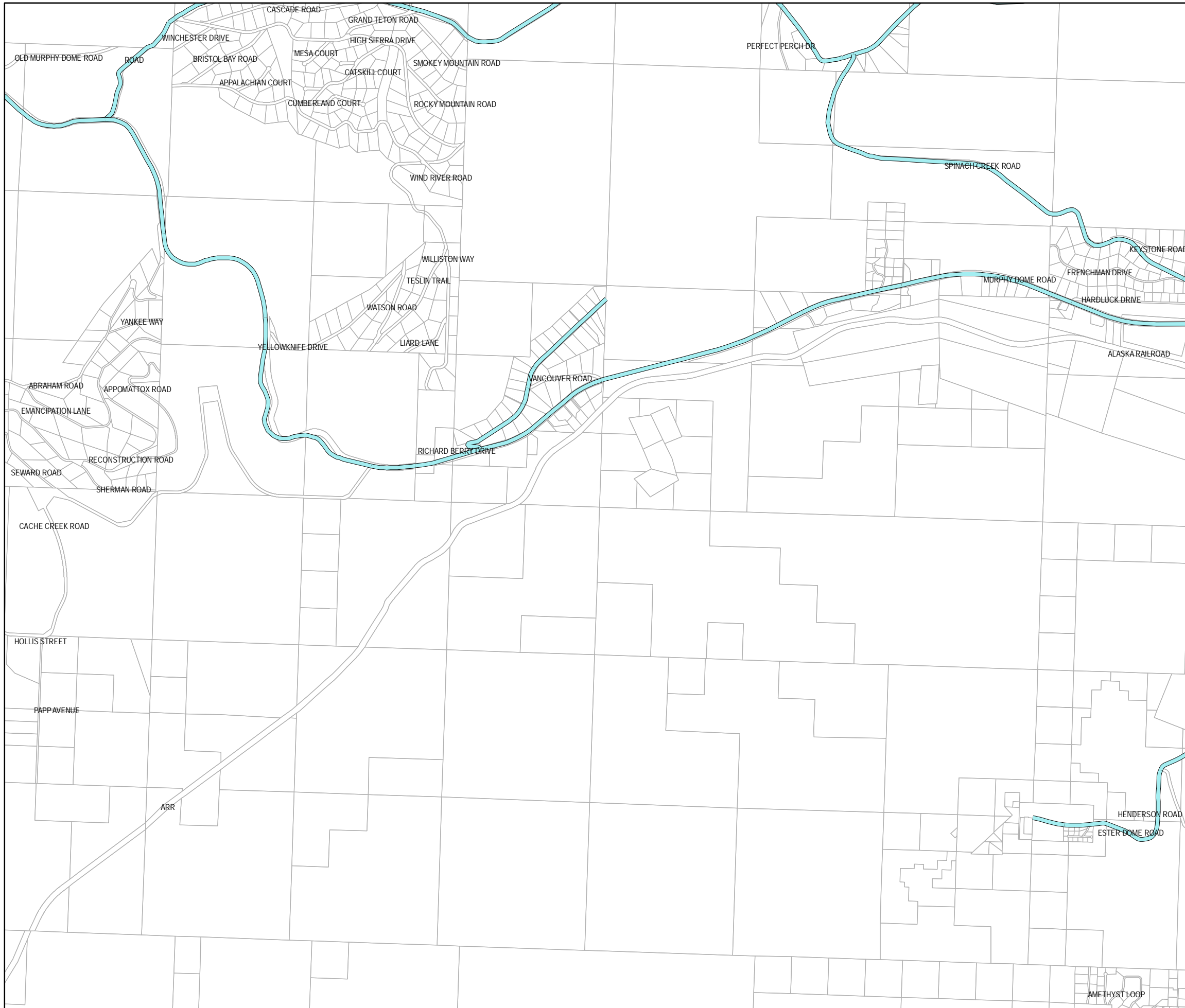
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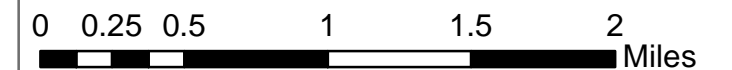
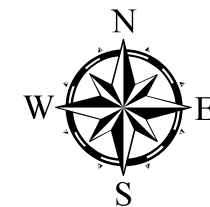
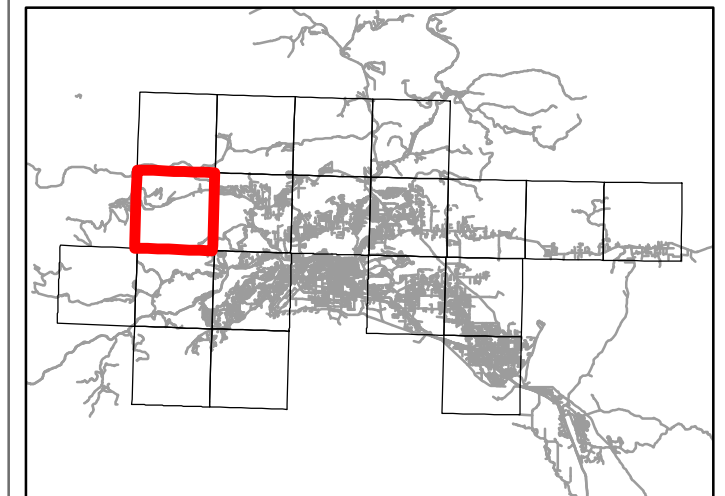
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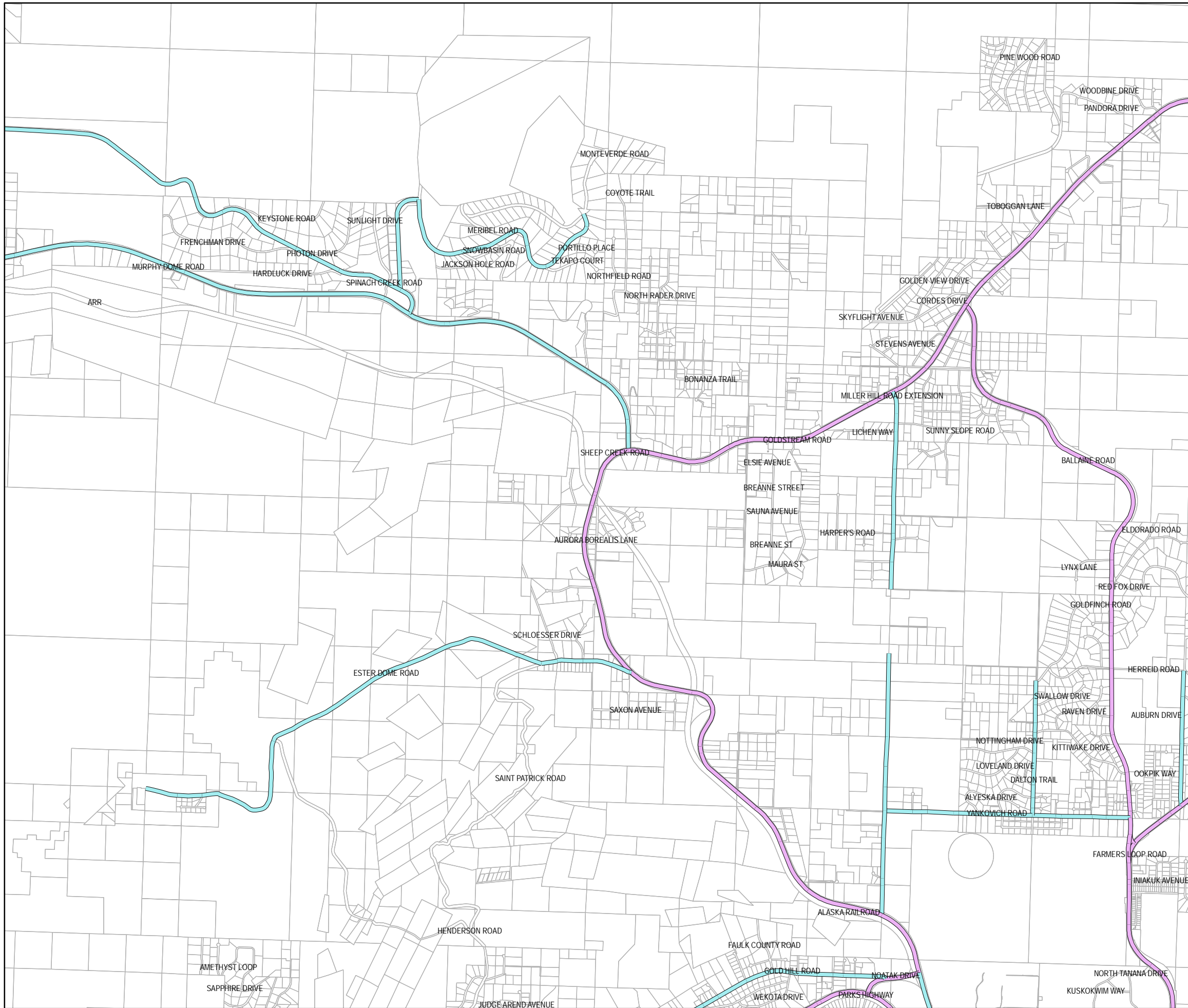
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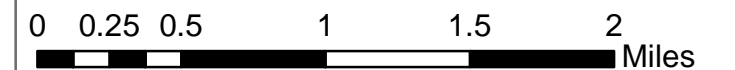
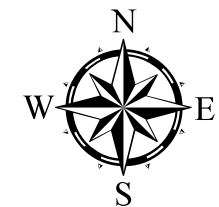
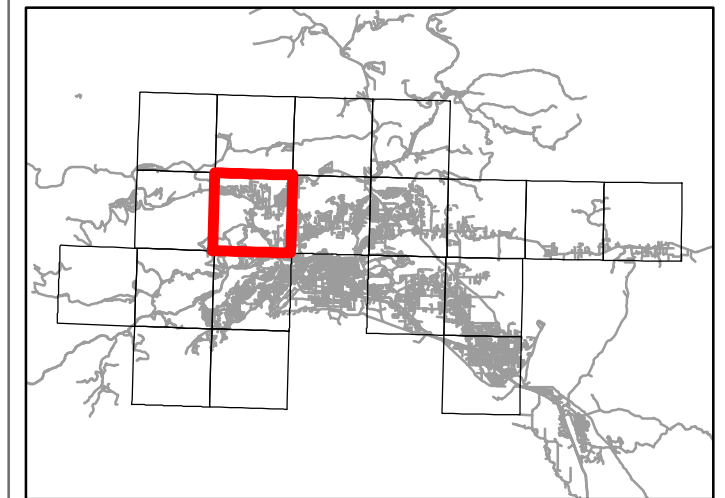
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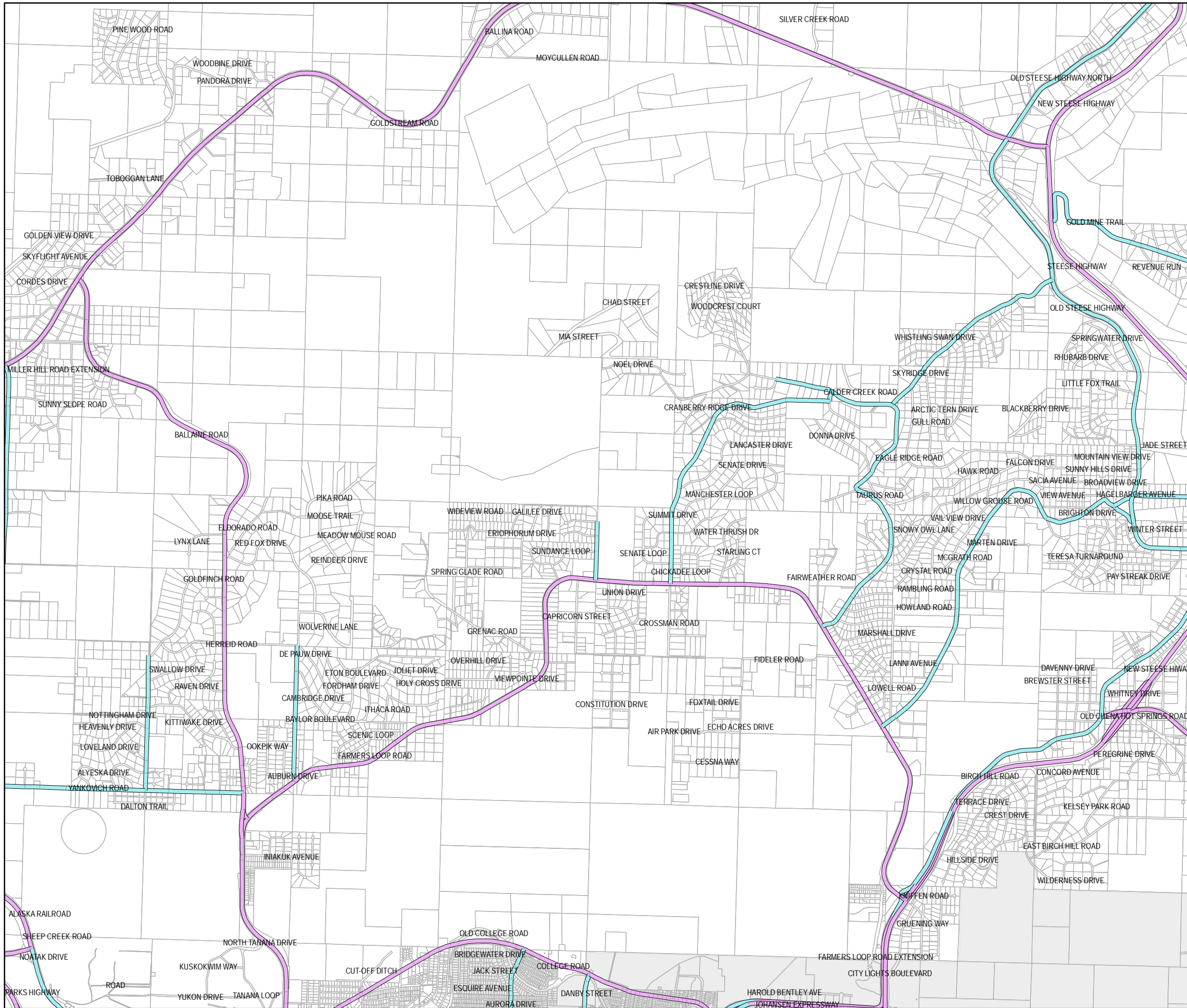
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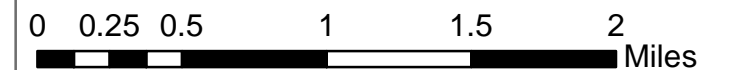
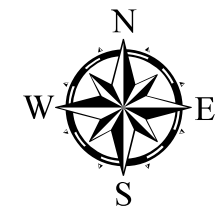
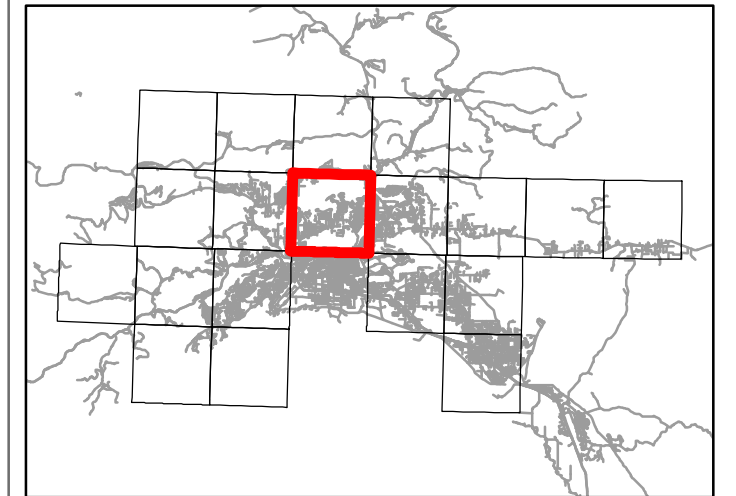
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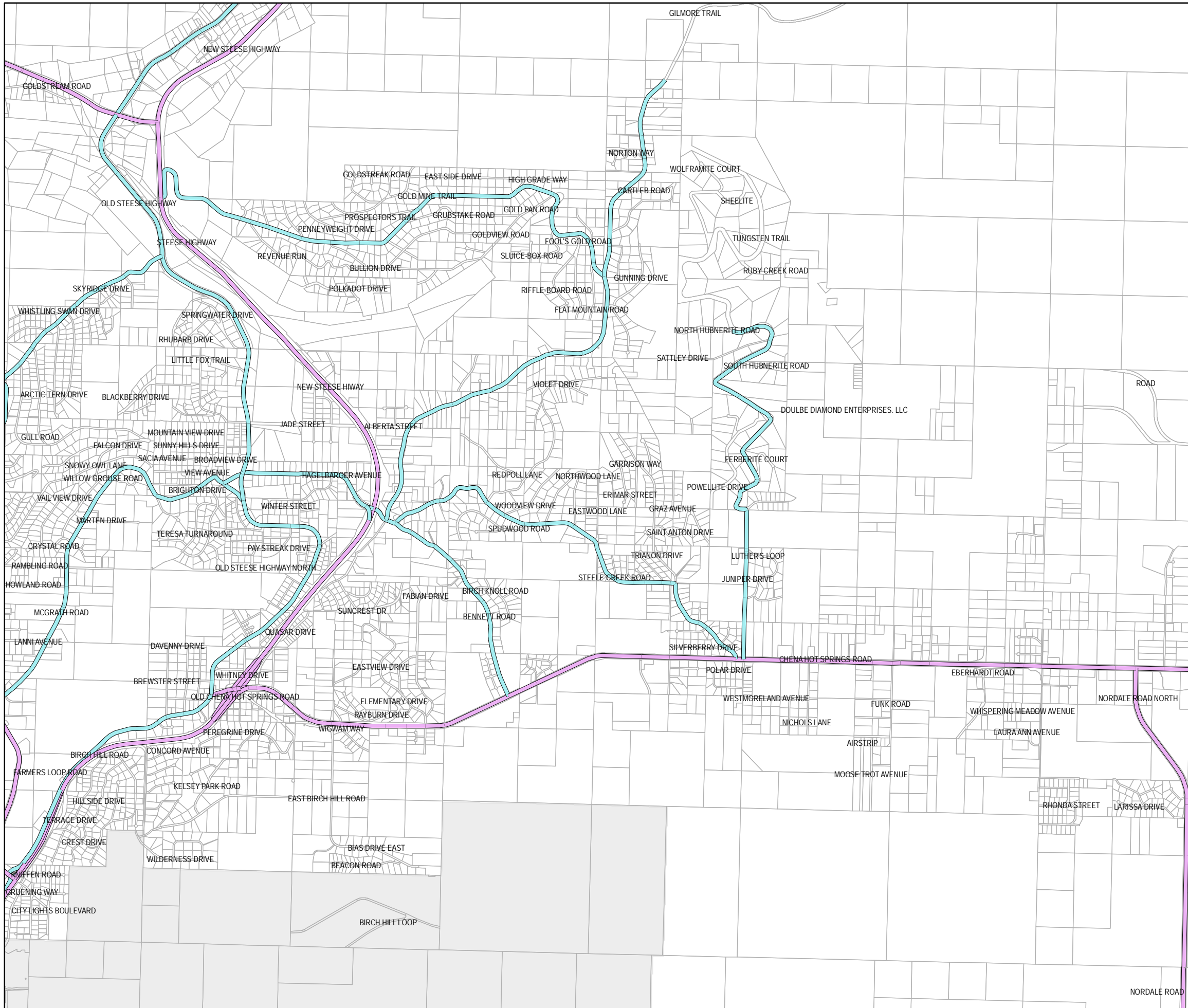
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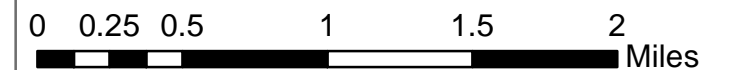
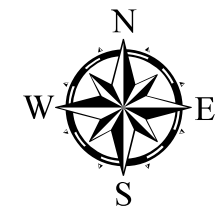
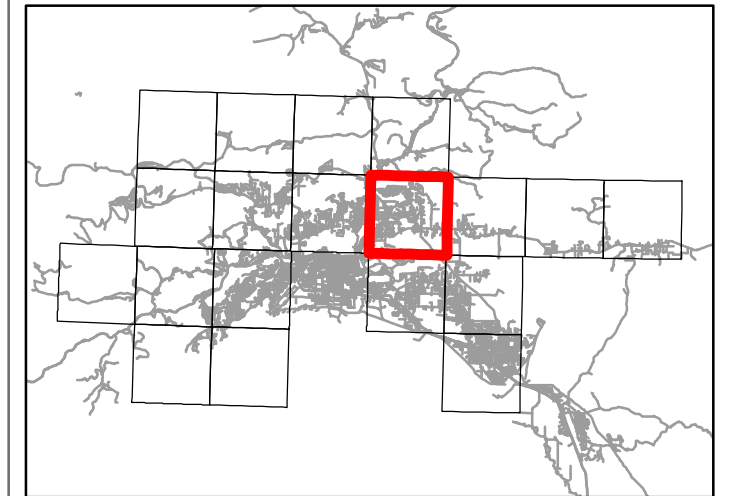
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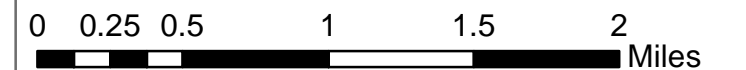
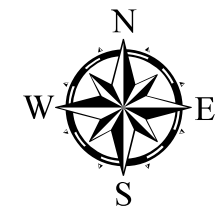
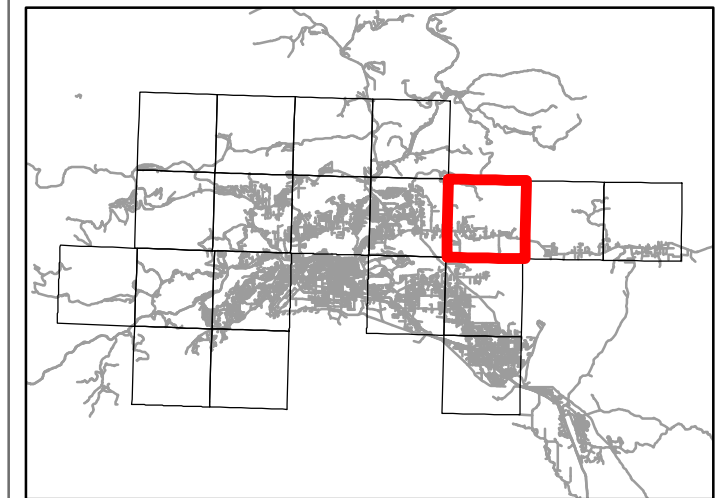


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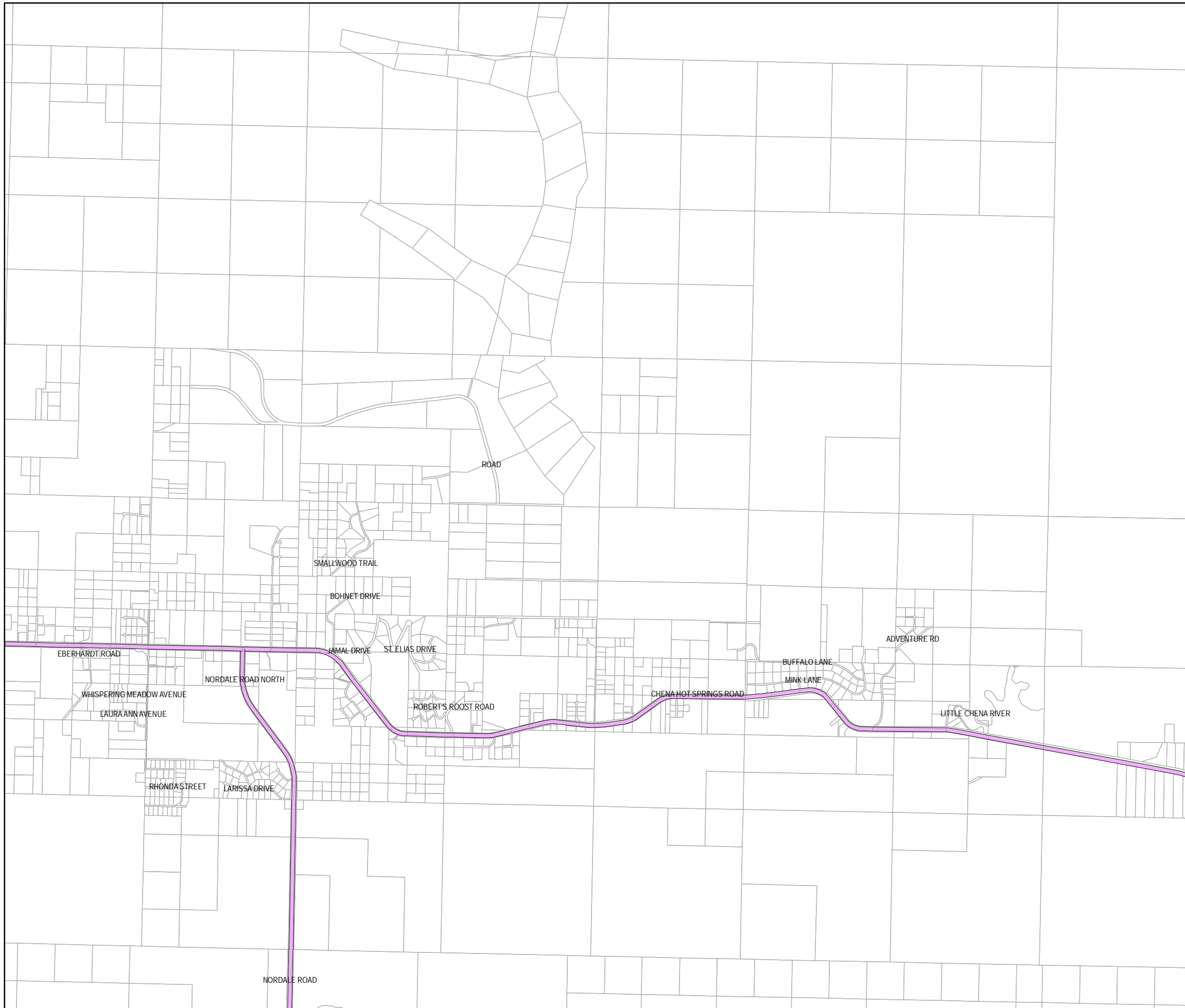
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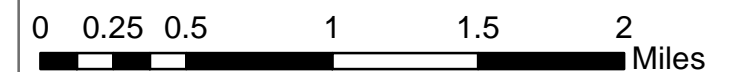
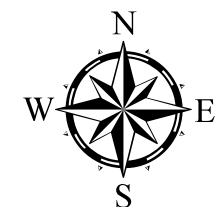
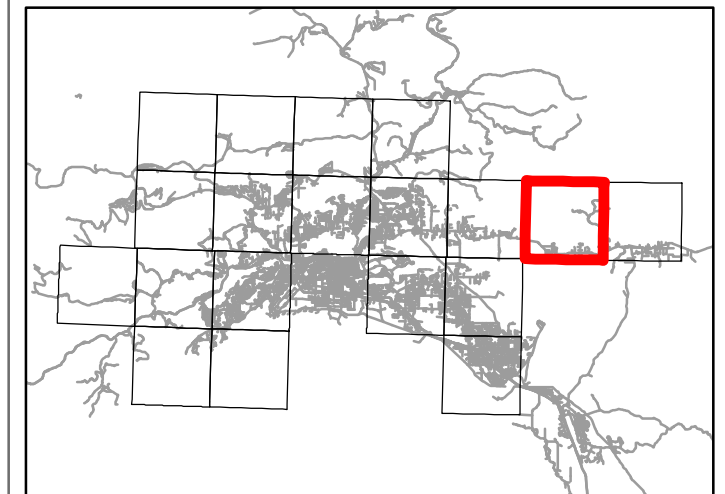


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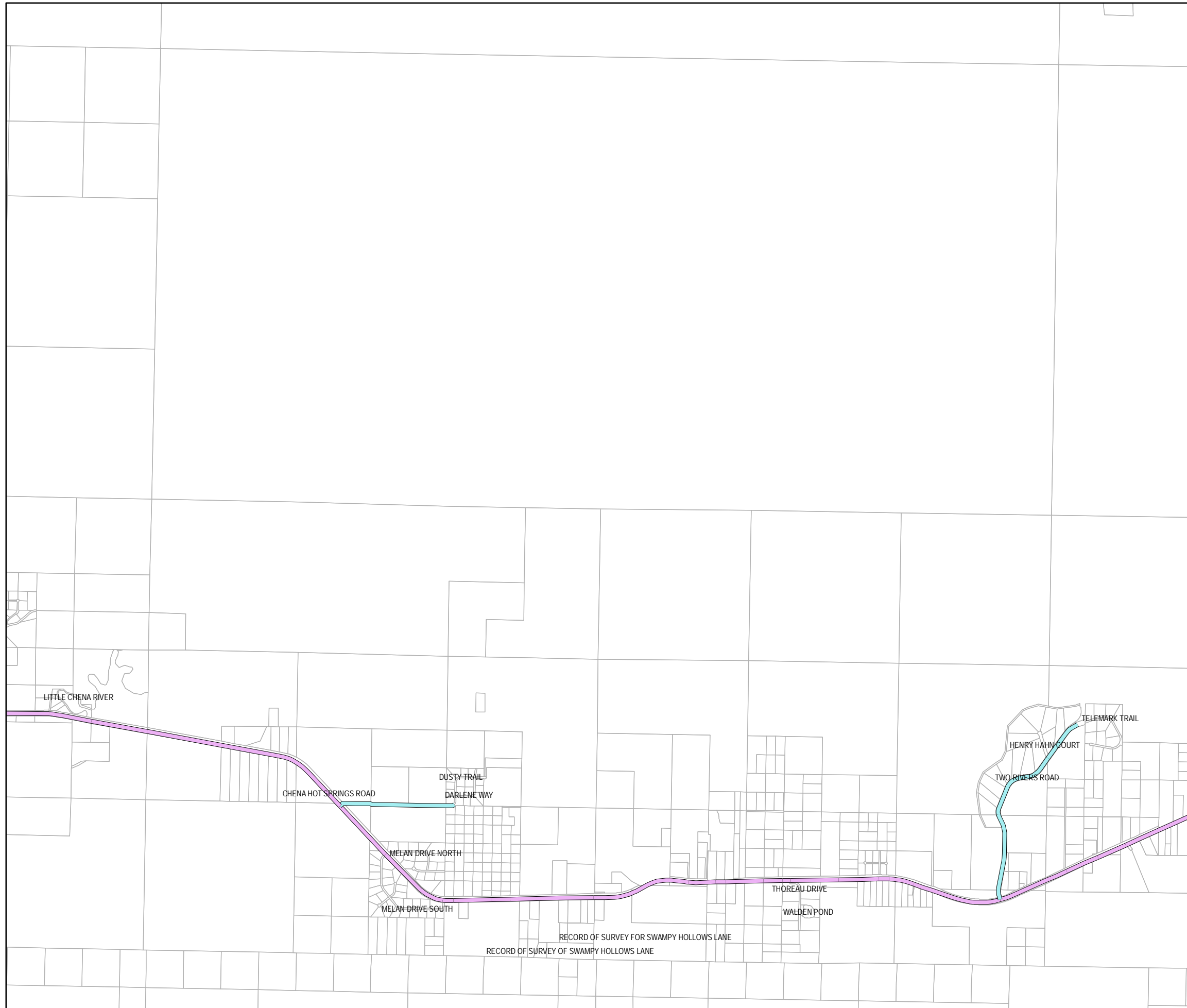
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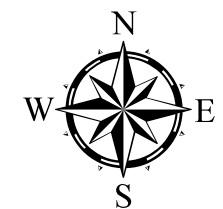
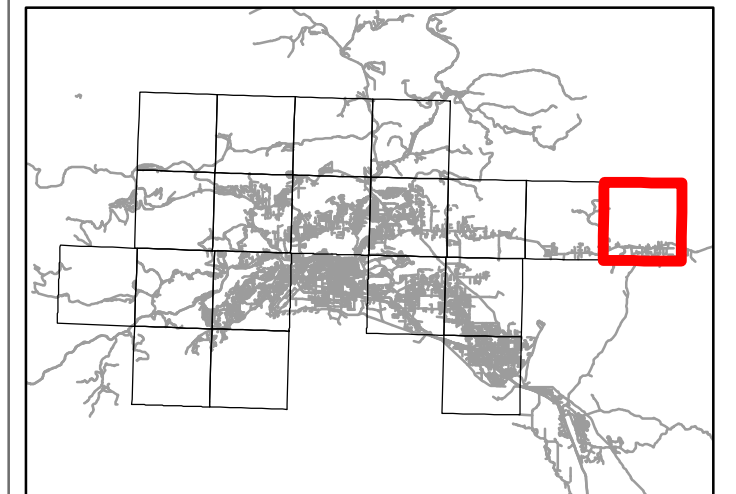


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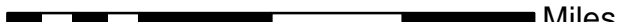
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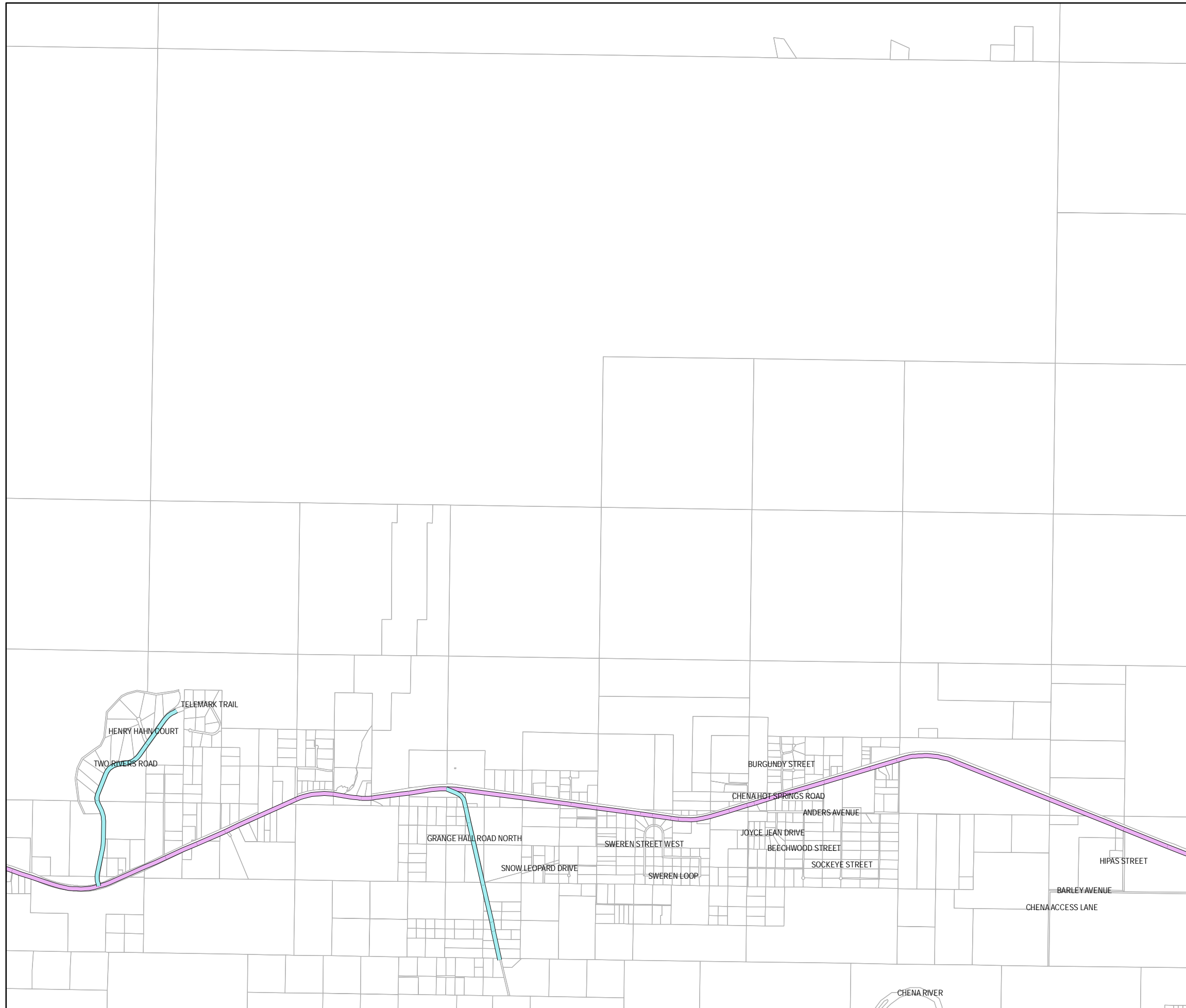
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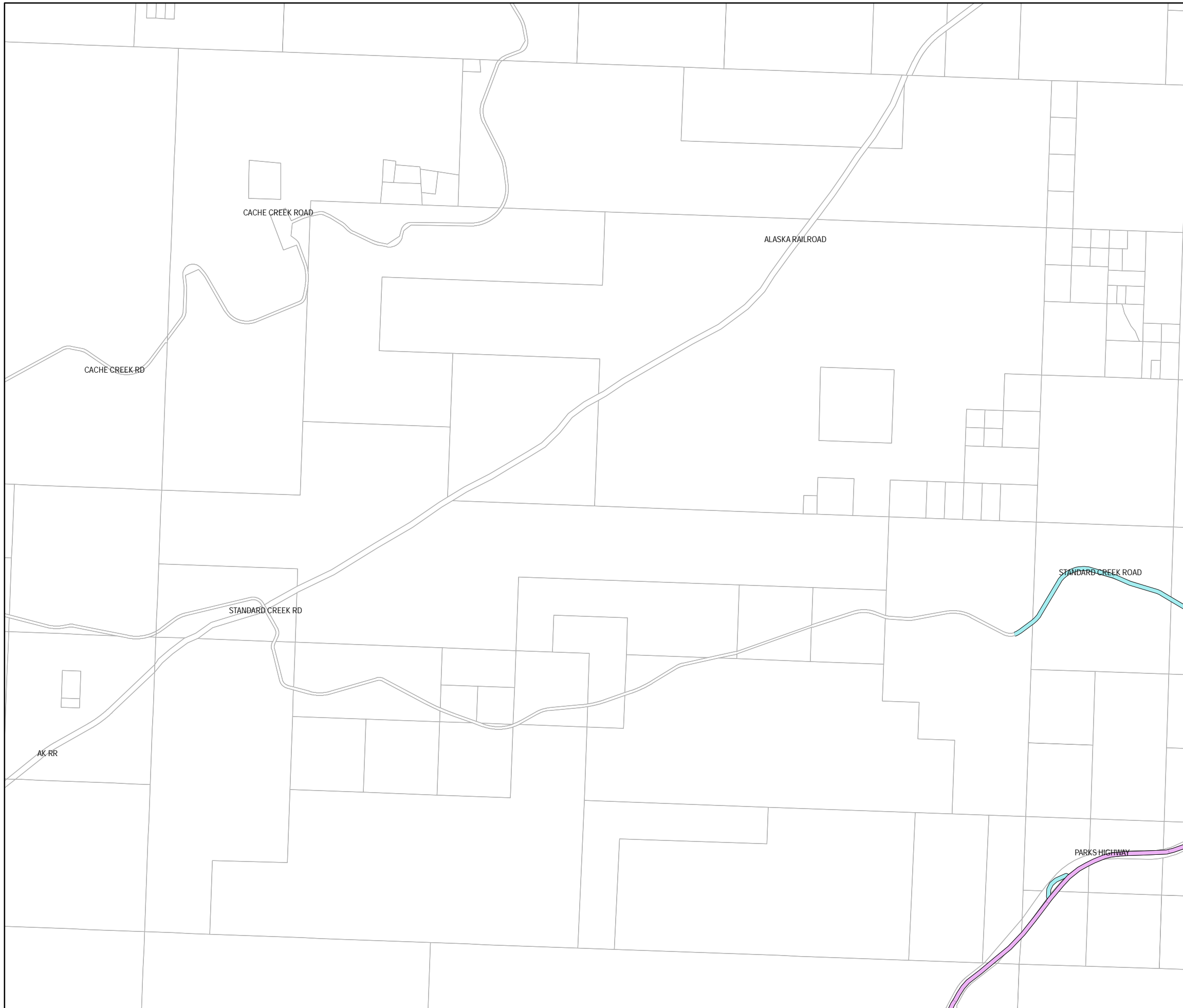


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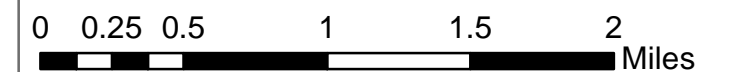
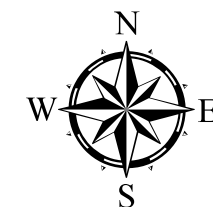
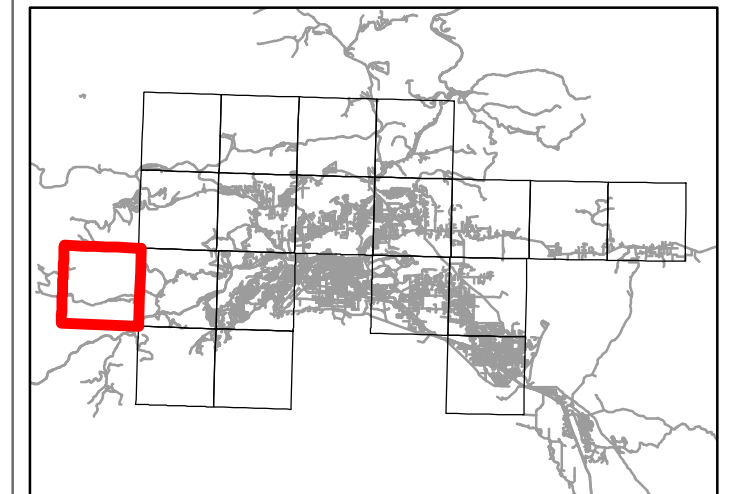


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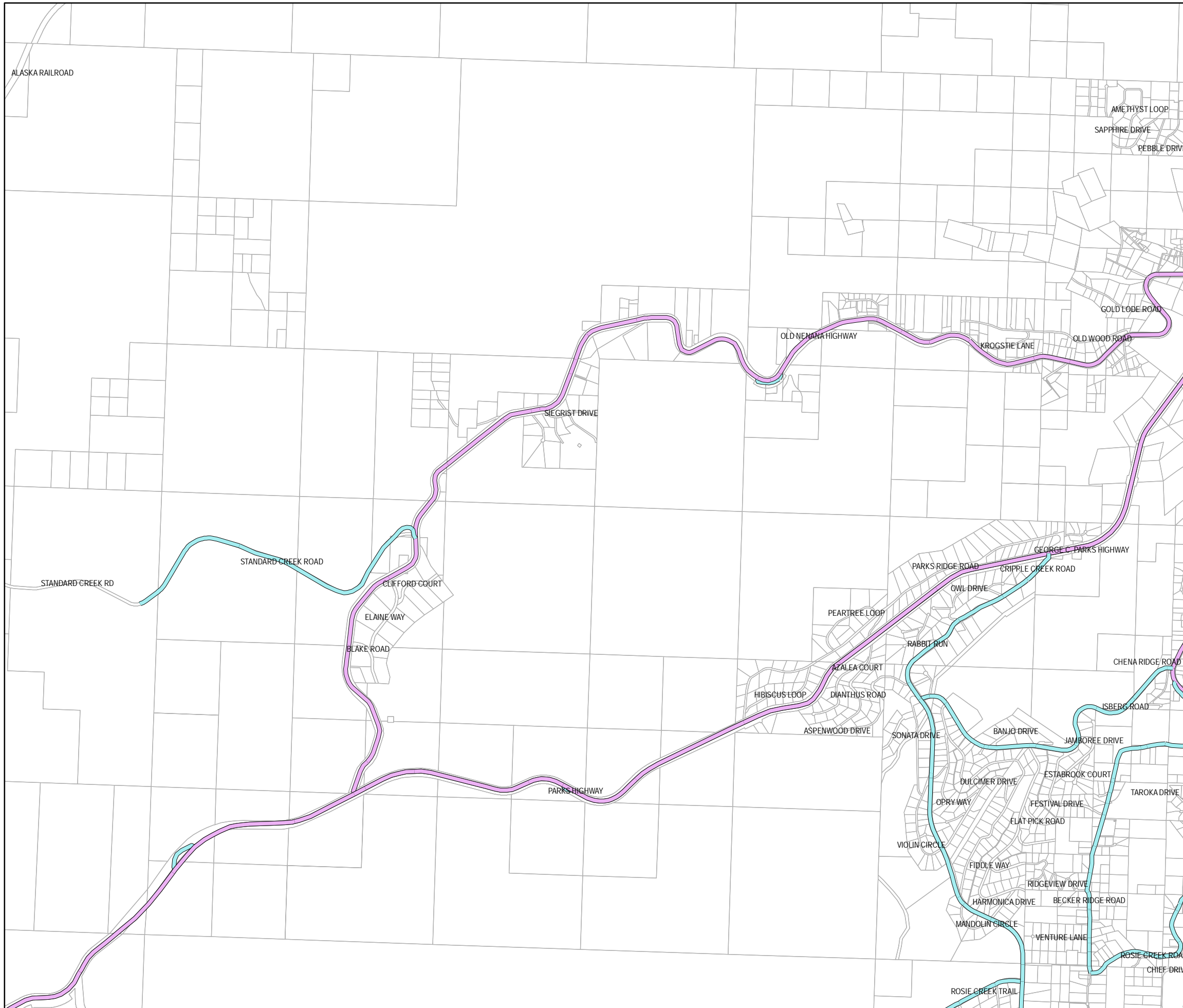
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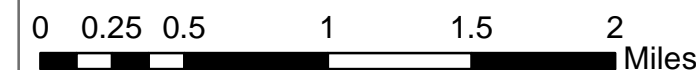
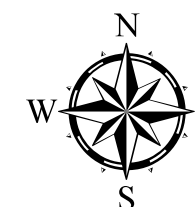
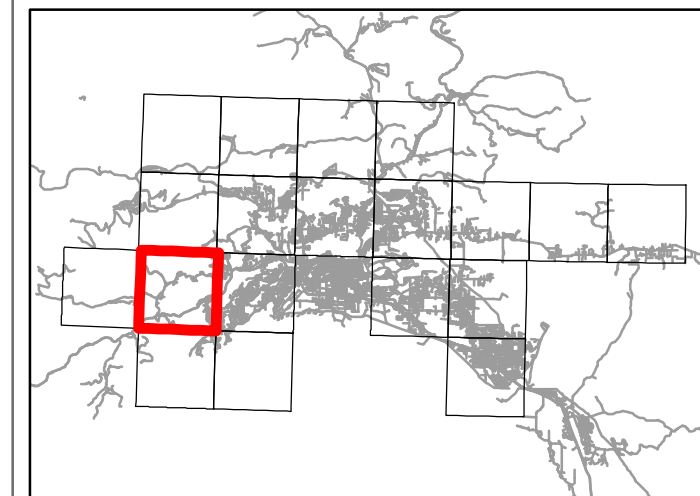
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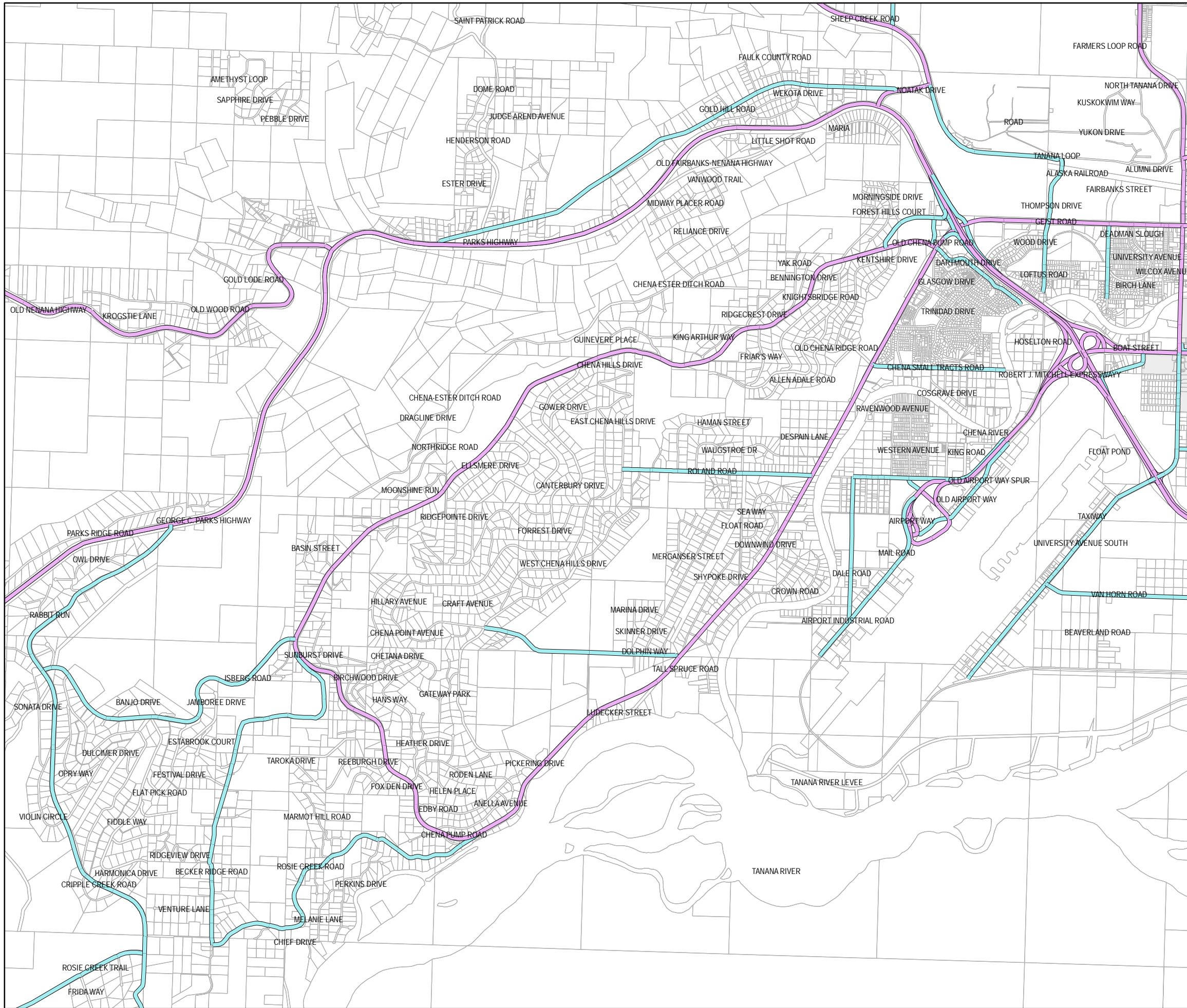
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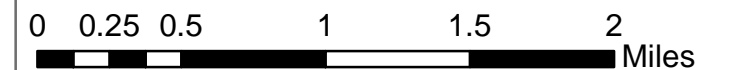
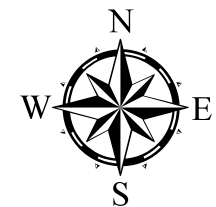
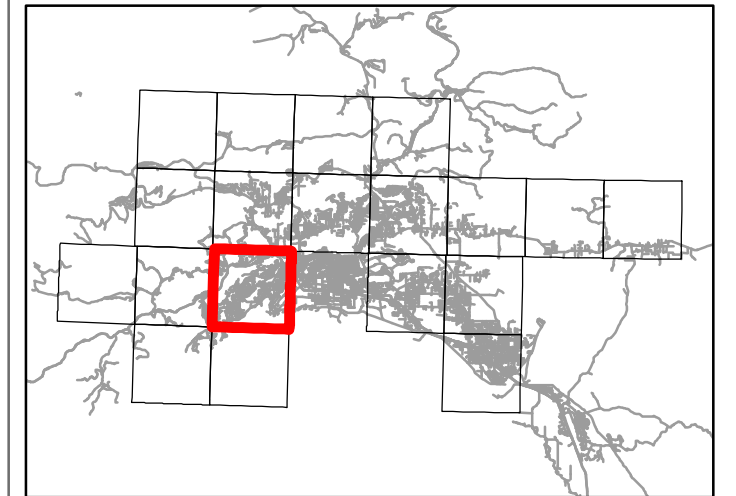
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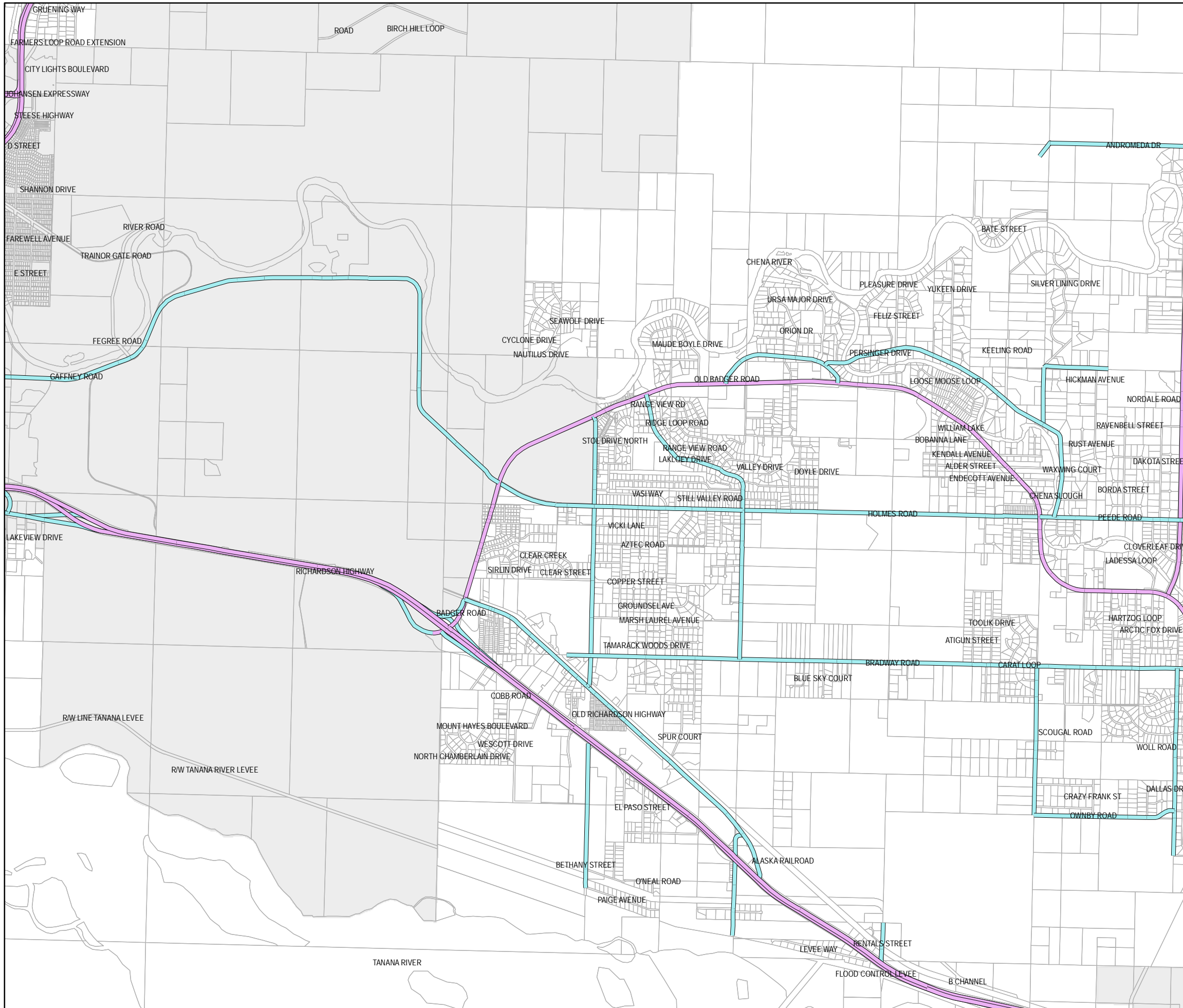
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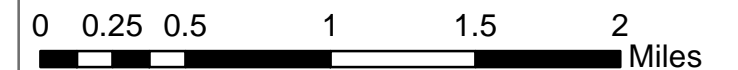
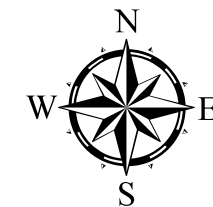
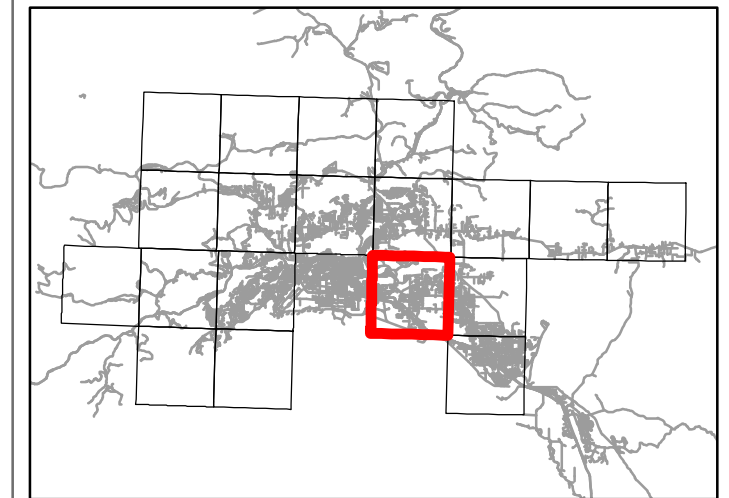
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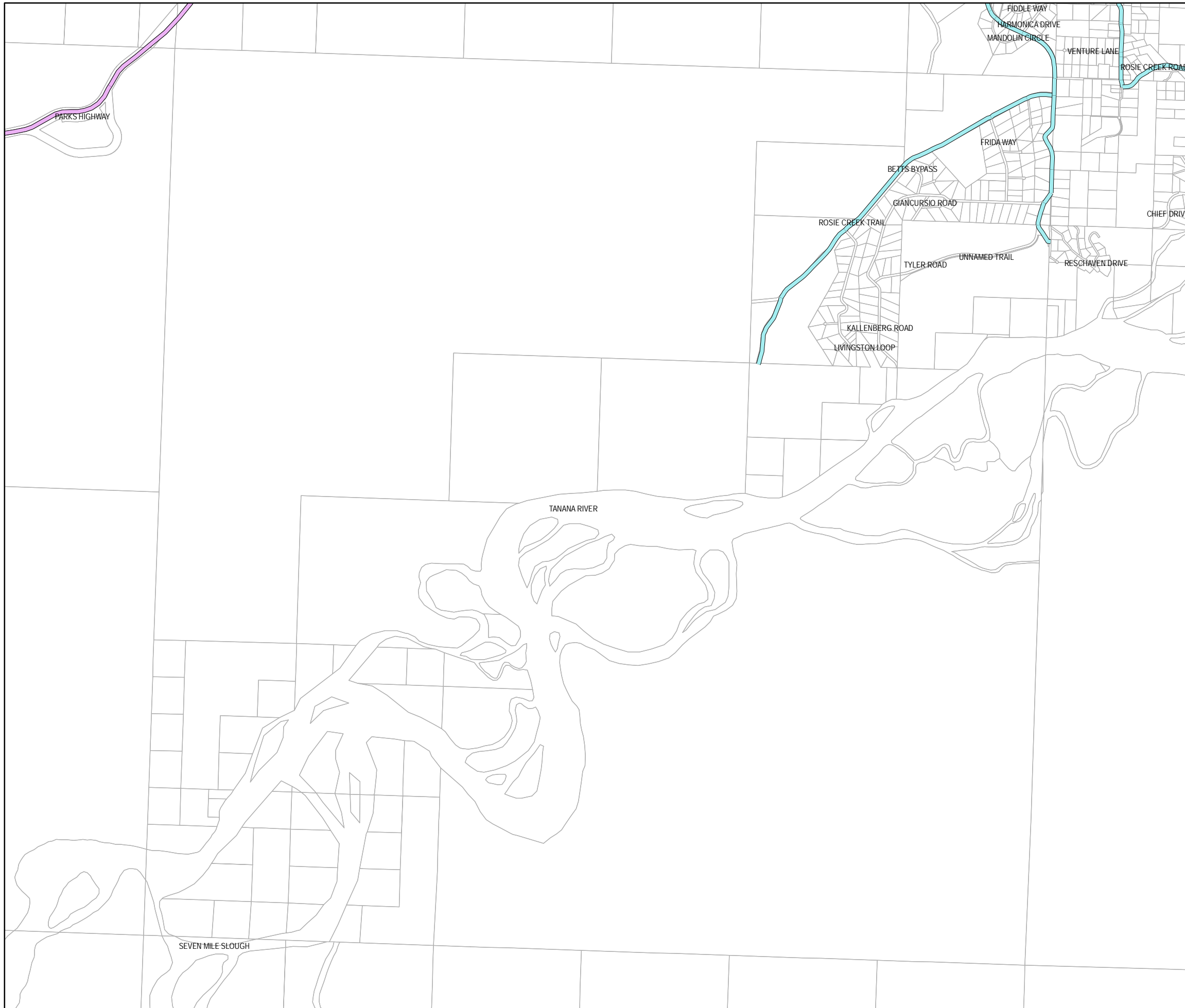
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Functional Classification

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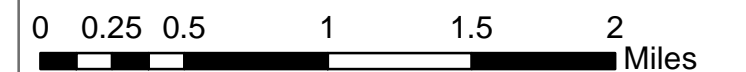
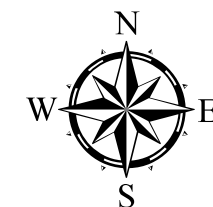
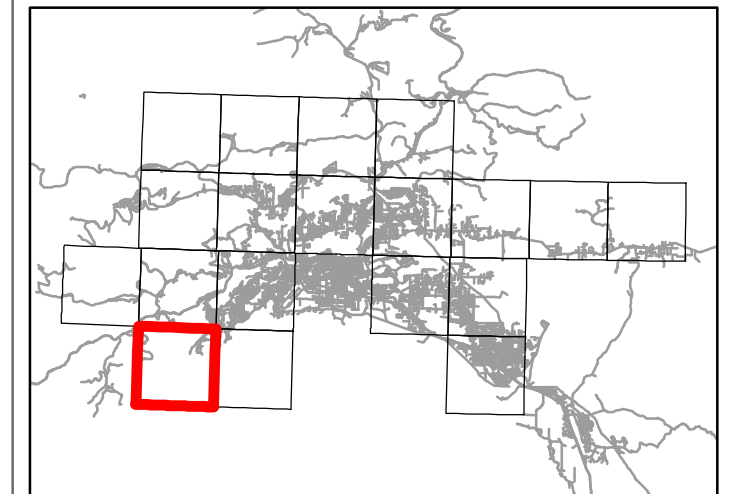


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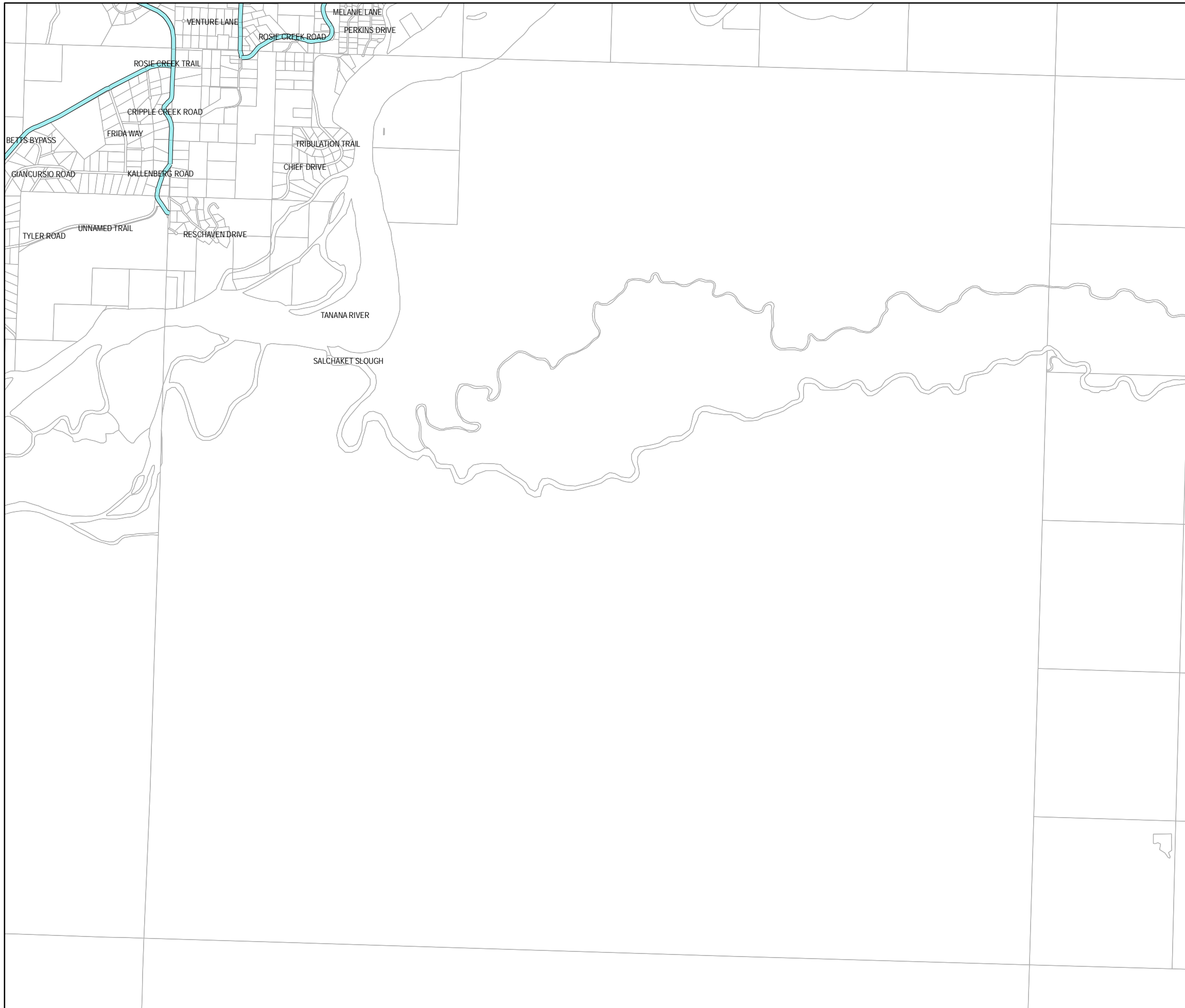
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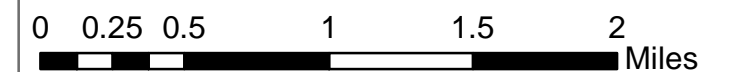
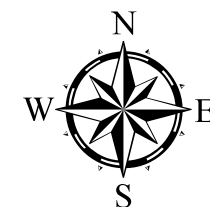
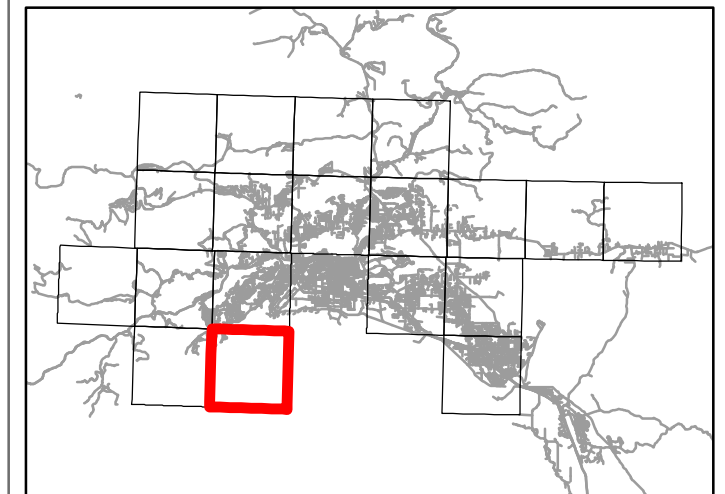


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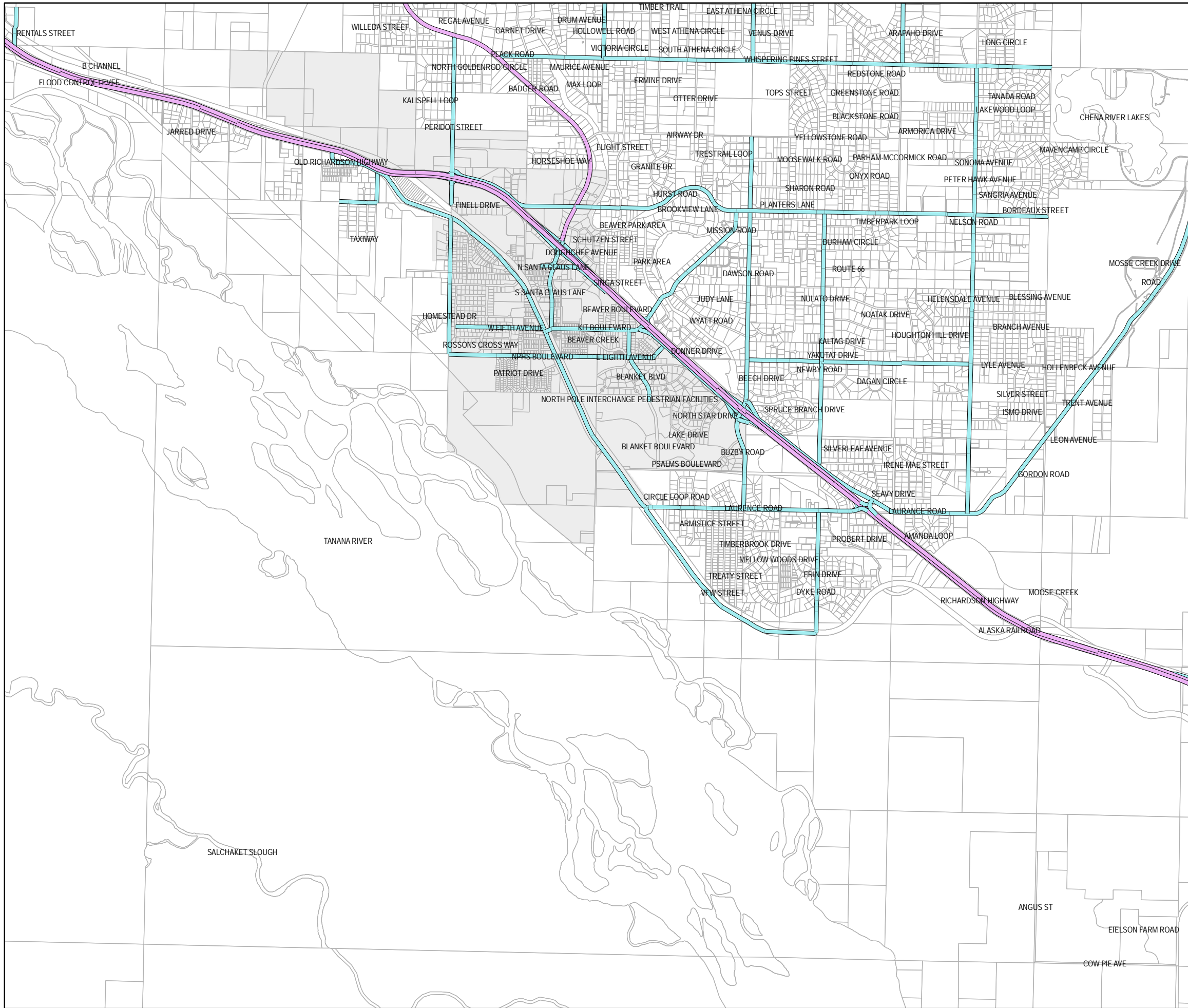
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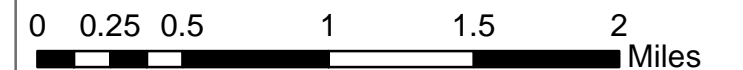
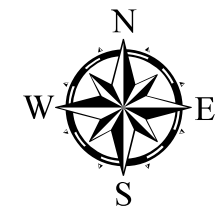
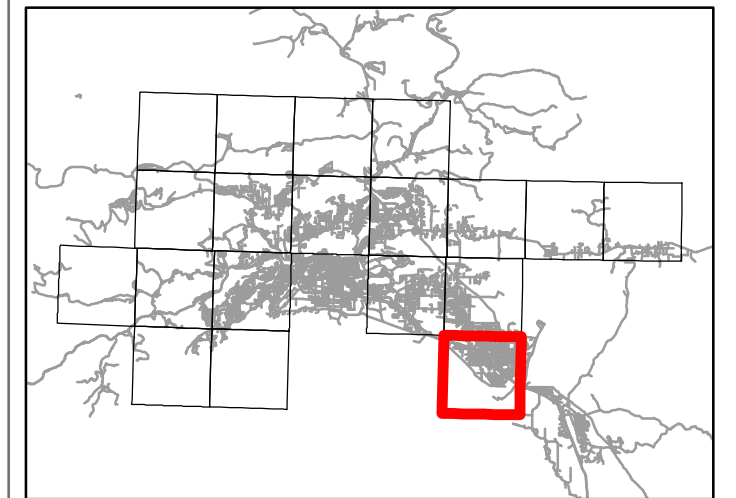
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Comprehensive Road Plan

Functional Classification

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APPENDIX C

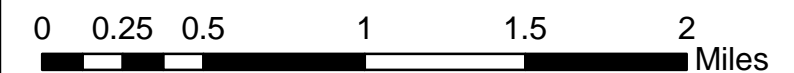
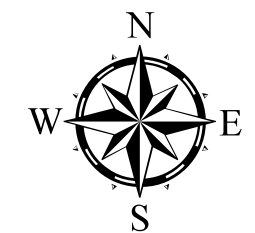
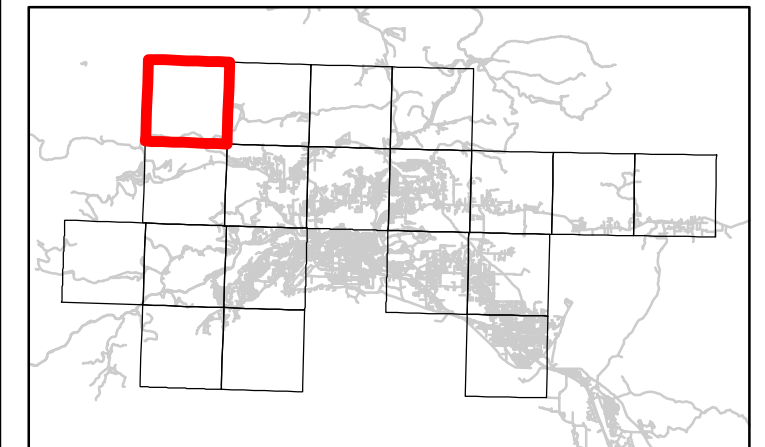
Road Network Existing Conditions Map Set



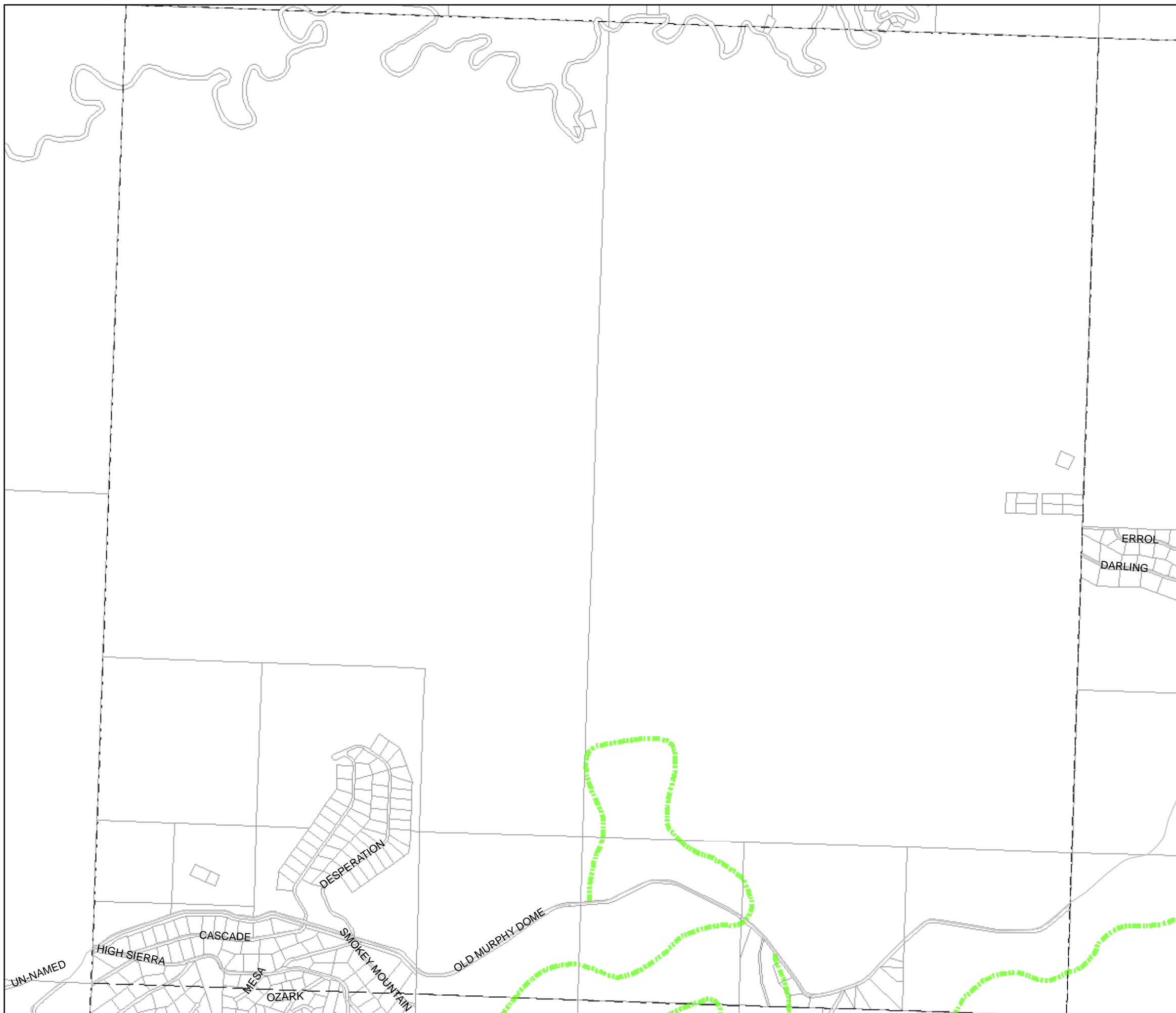
Comprehensive Road Plan

Road Corridors

-  Planned road, ROW developed, no road constructed
-  Planned road, constructed road, no ROW
-  Planned road, ROW developed, road constructed
-  Proposed Major Collector (1991)
-  Proposed Minor Collector (1991)








02N 03W

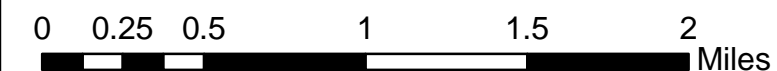
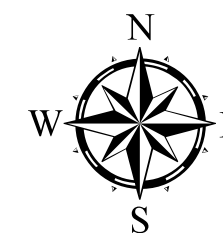
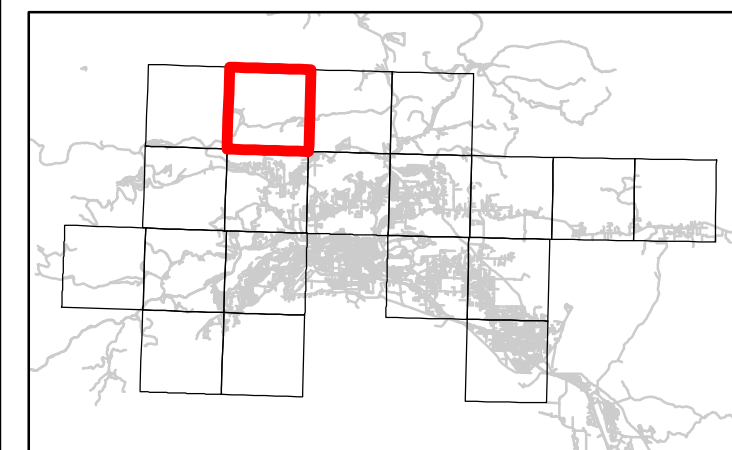




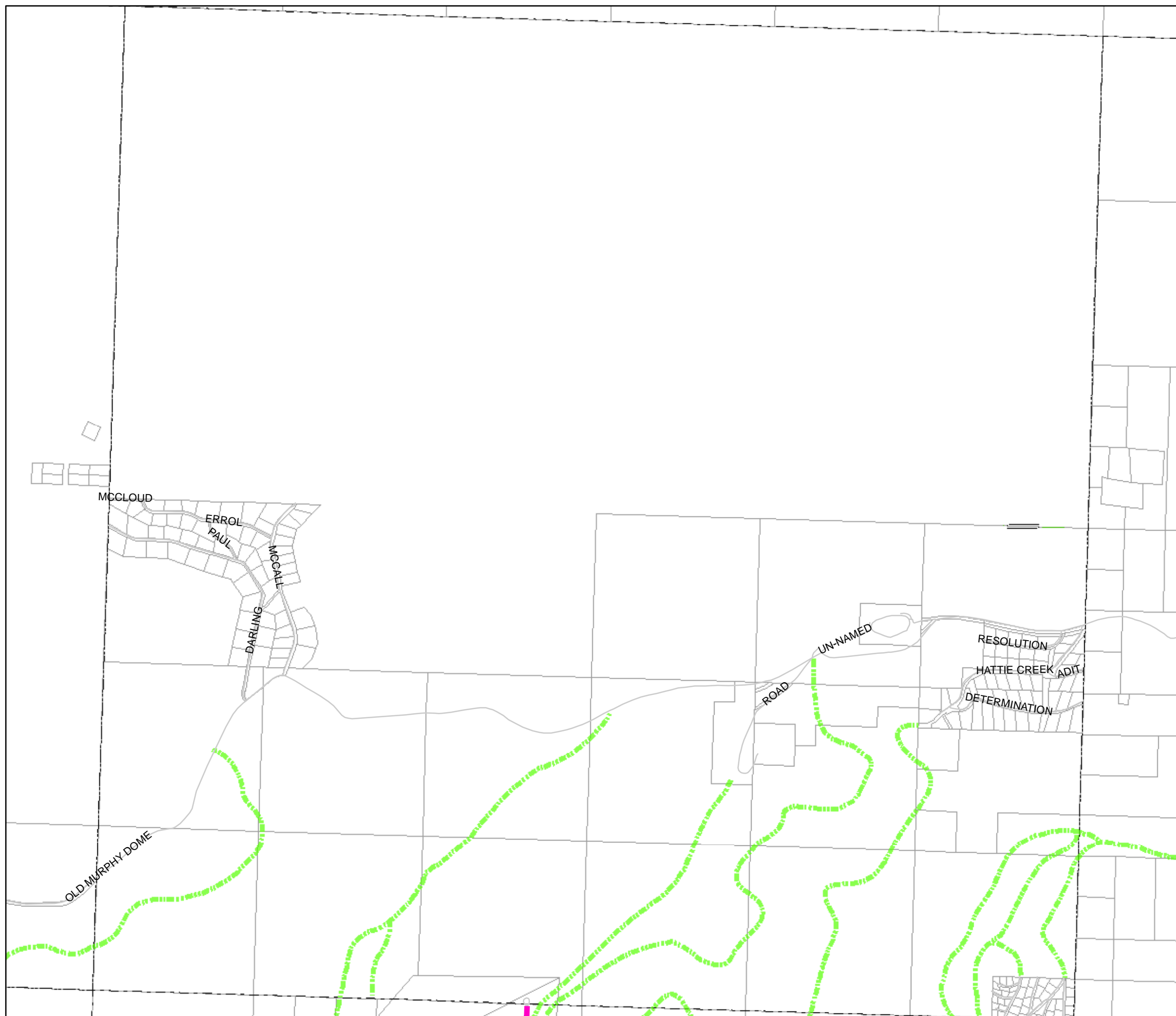
Comprehensive Road Plan

Road Corridors

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02N 02W

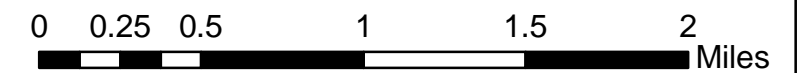
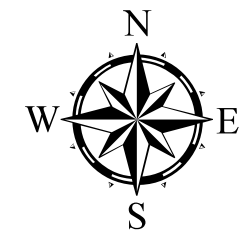
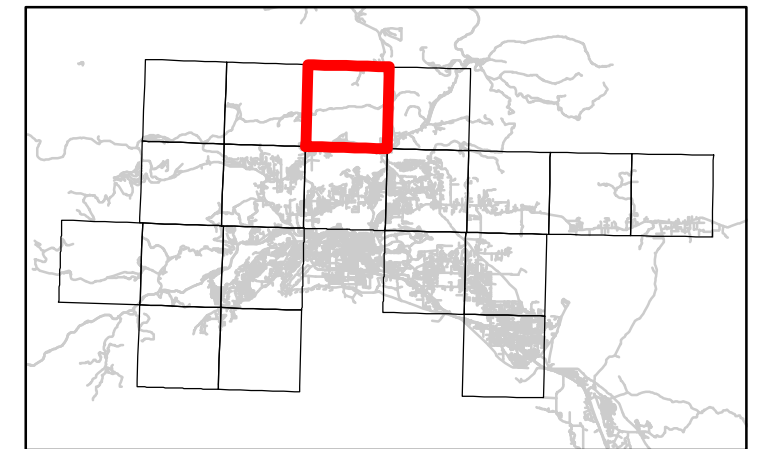




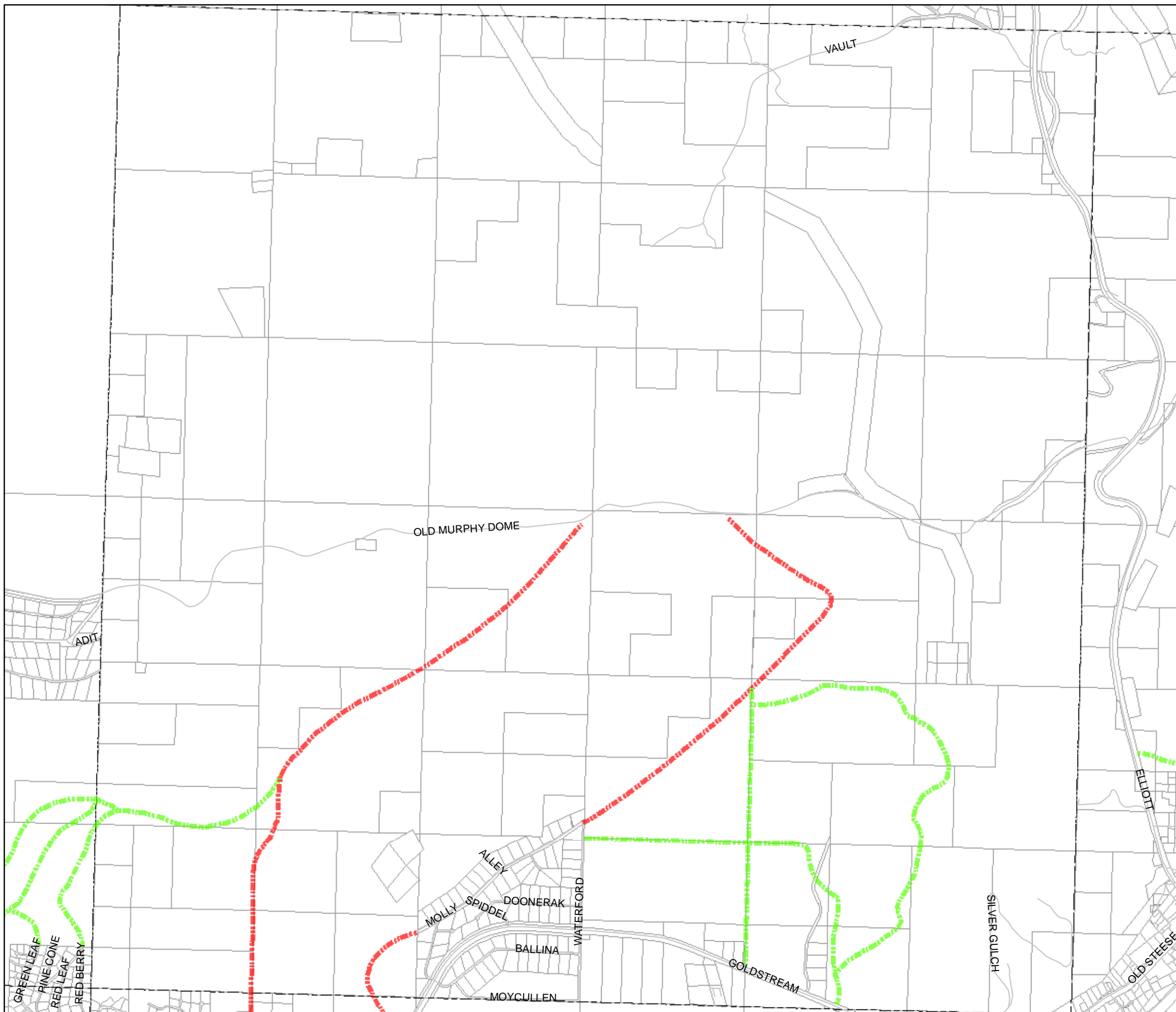
Comprehensive Road Plan

Road Corridors

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-  Planned road, ROW developed, road constructed
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02N 01W

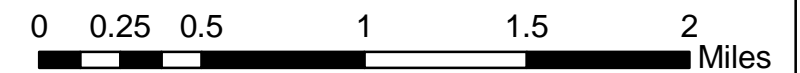
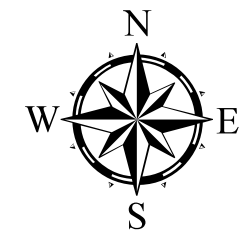
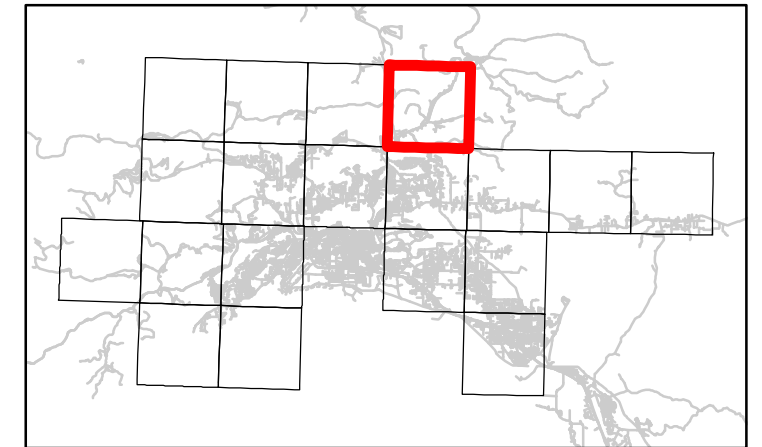




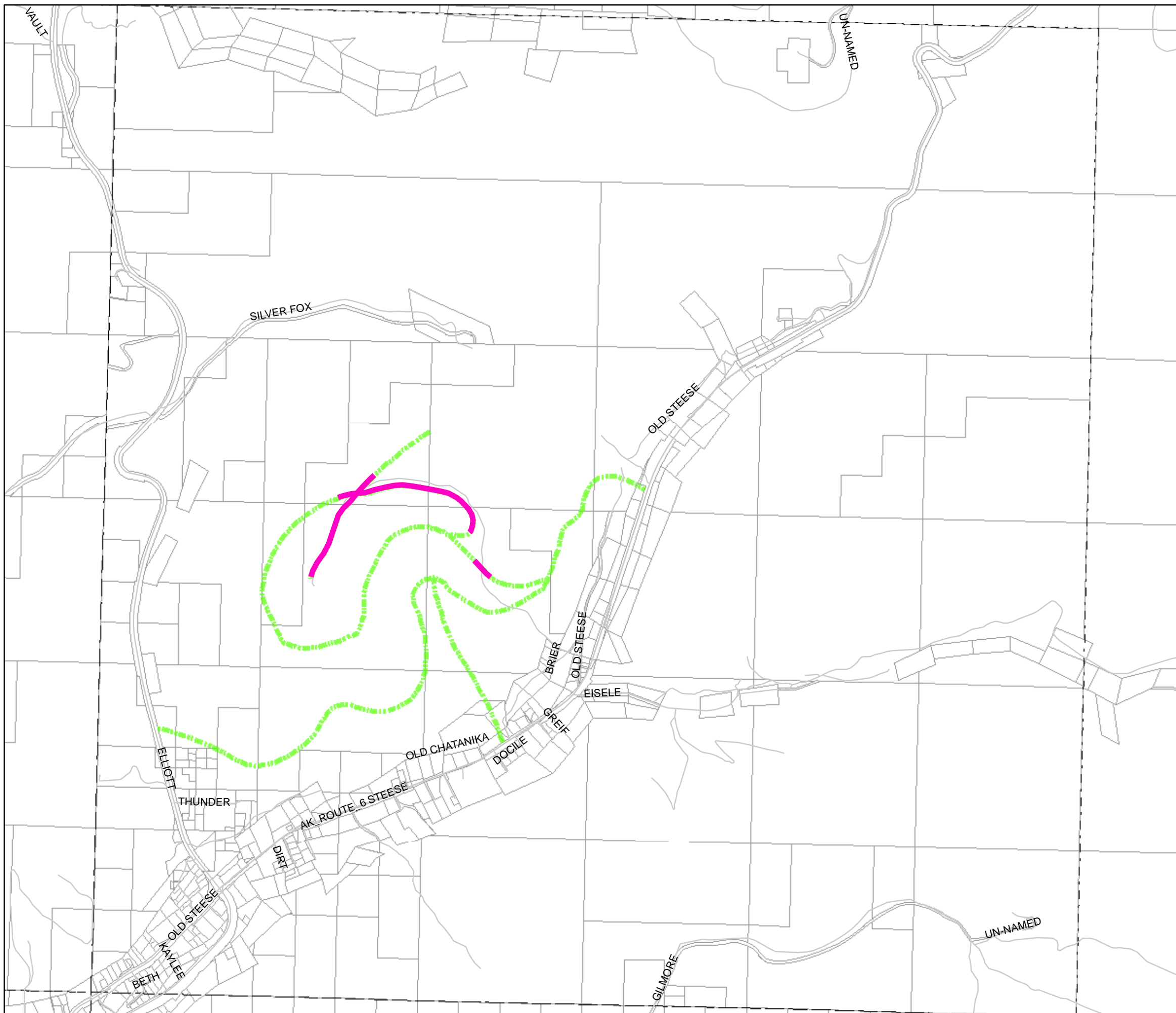
Comprehensive Road Plan

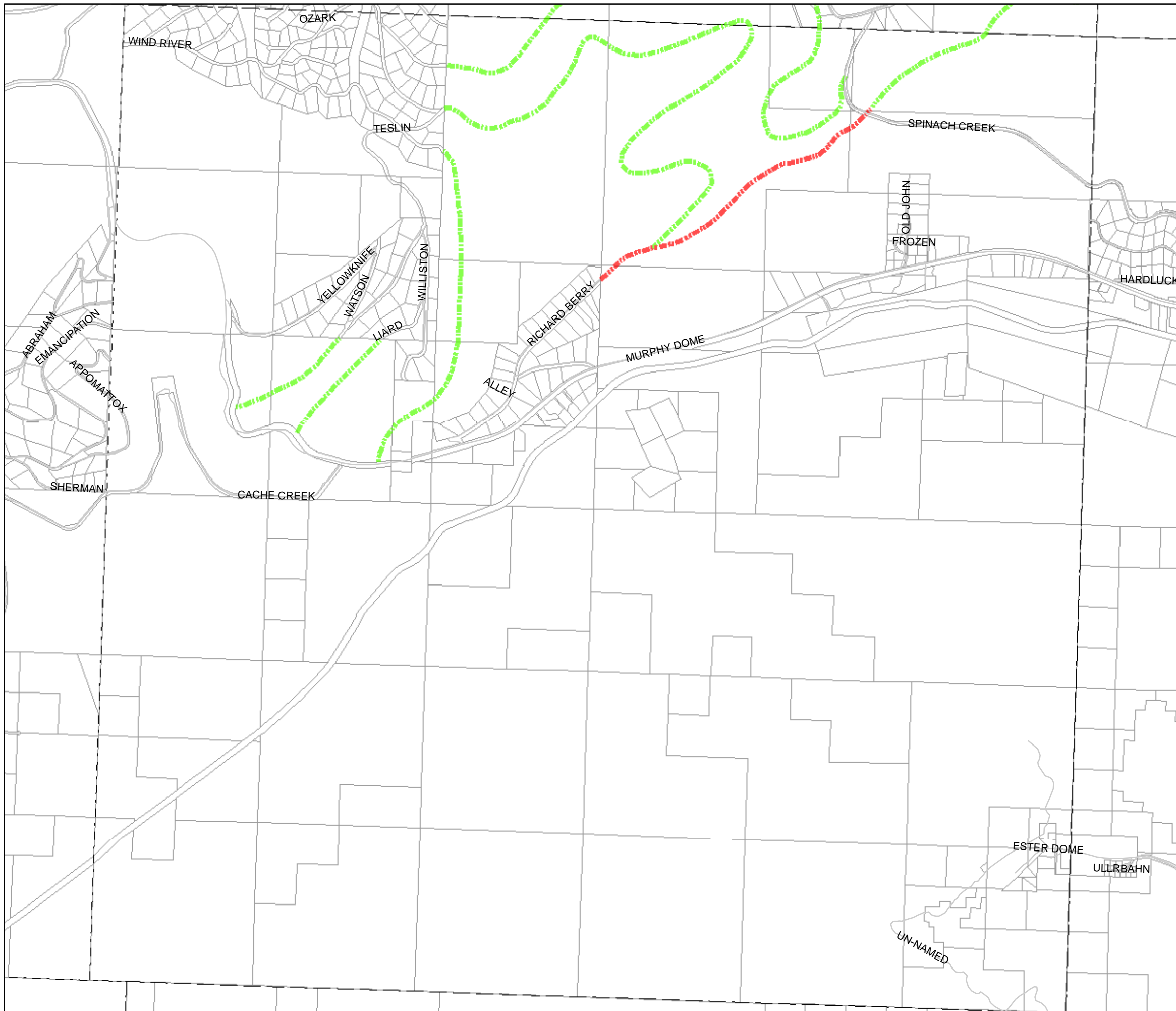
Road Corridors

-  Planned road, ROW developed, no road constructed
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-  Planned road, ROW developed, road constructed
-  Proposed Major Collector (1991)
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02N 01E

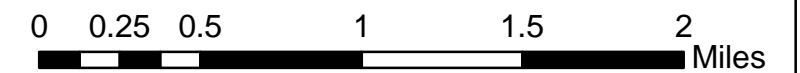
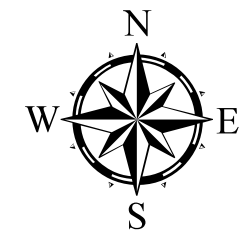
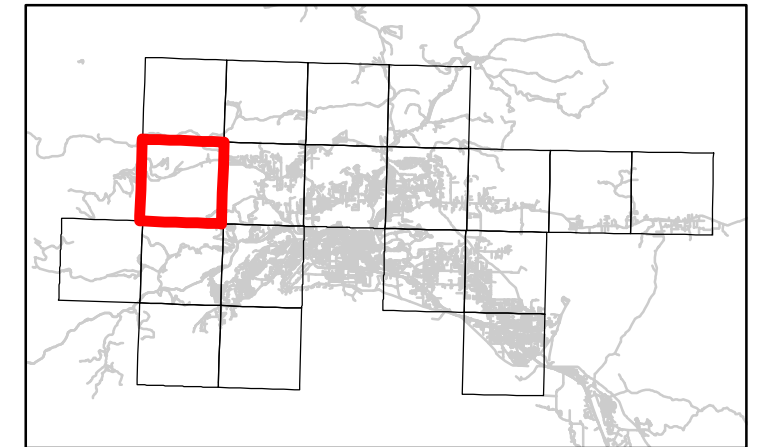




Comprehensive Road Plan

Road Corridors

- Planned road, ROW developed, no road constructed
- Planned road, constructed road, no ROW
- Planned road, ROW developed, road constructed
- - - Proposed Major Collector (1991)
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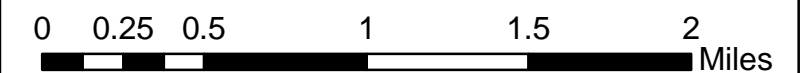
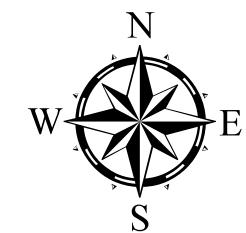
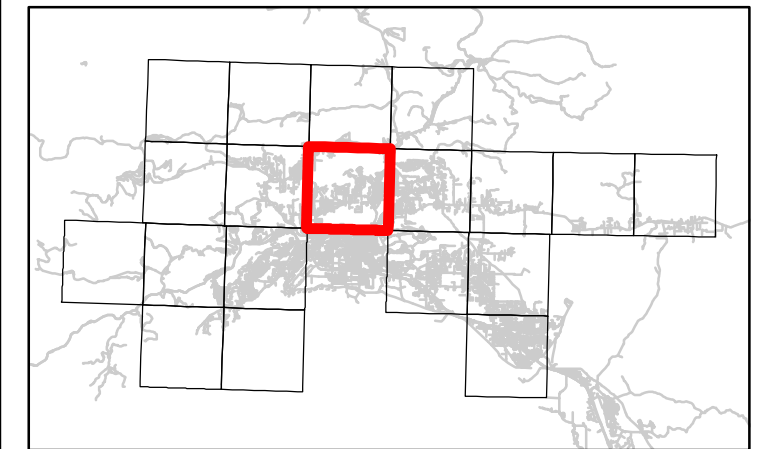
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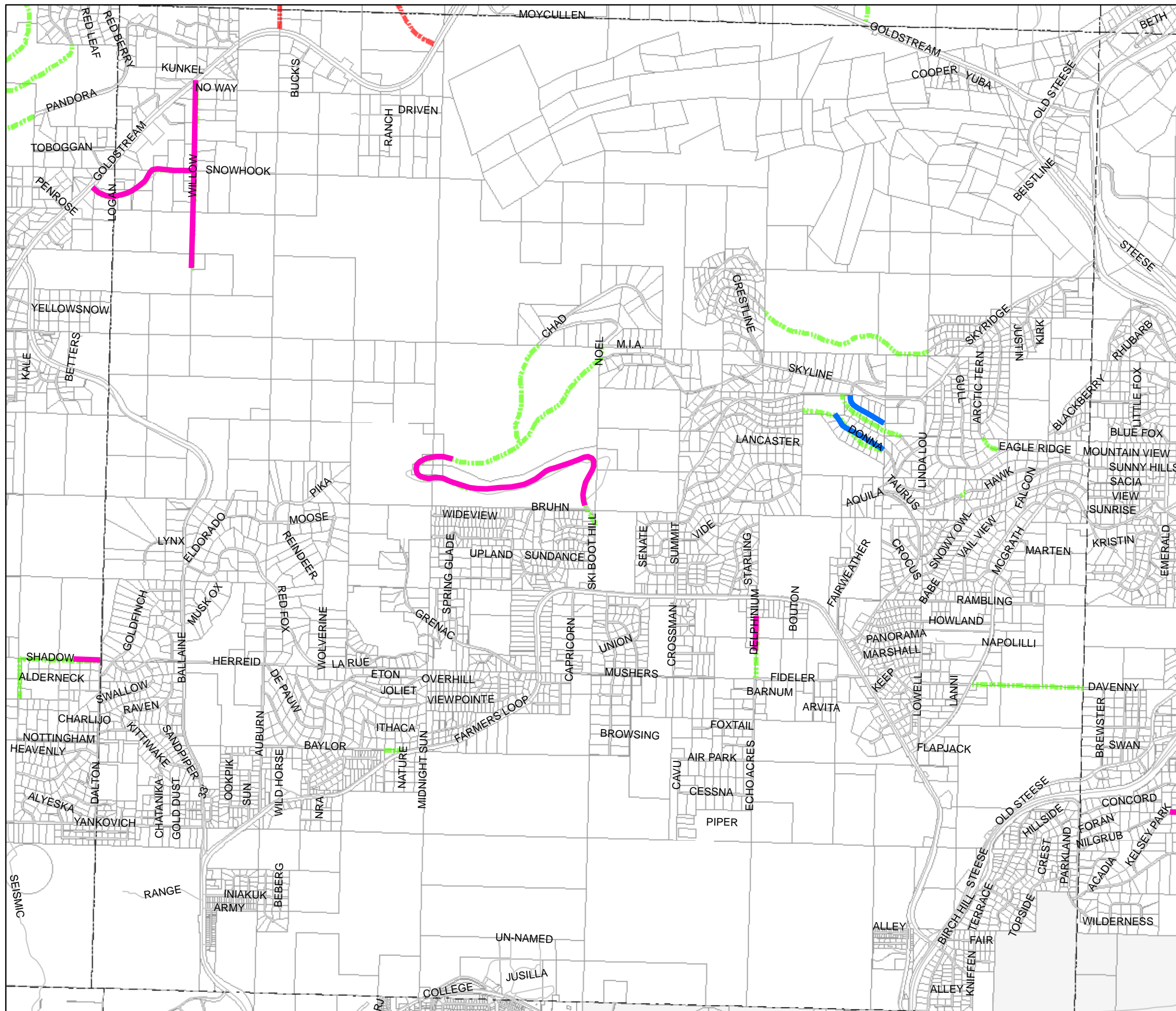
Comprehensive Road Plan

Road Corridors

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01N 01W

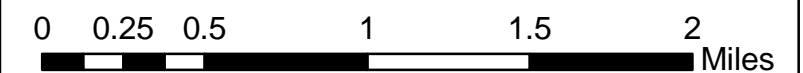
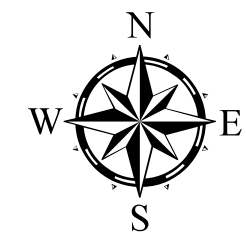
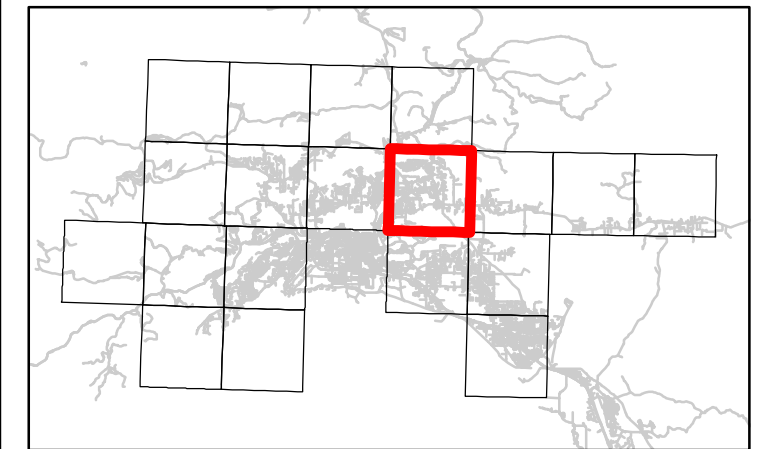




Comprehensive Road Plan

Road Corridors

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01N 01E

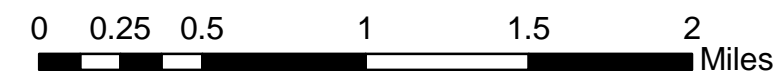
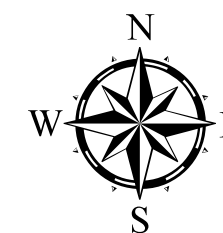
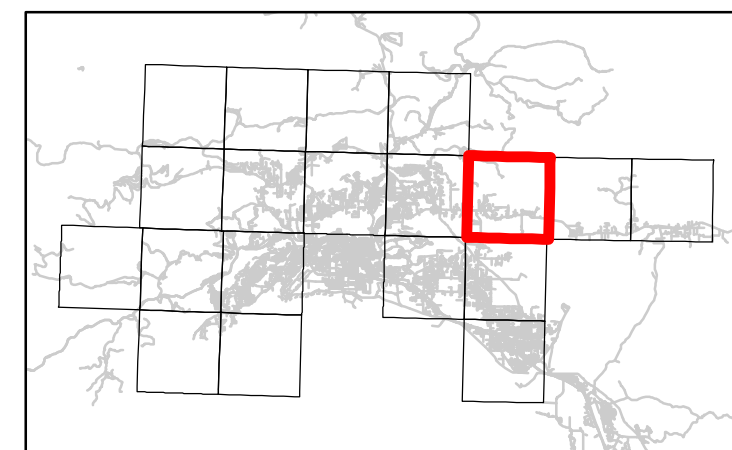




Comprehensive Road Plan

Road Corridors

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01N 02E

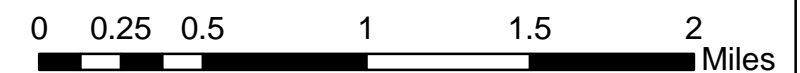
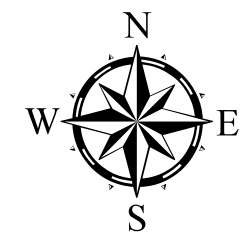
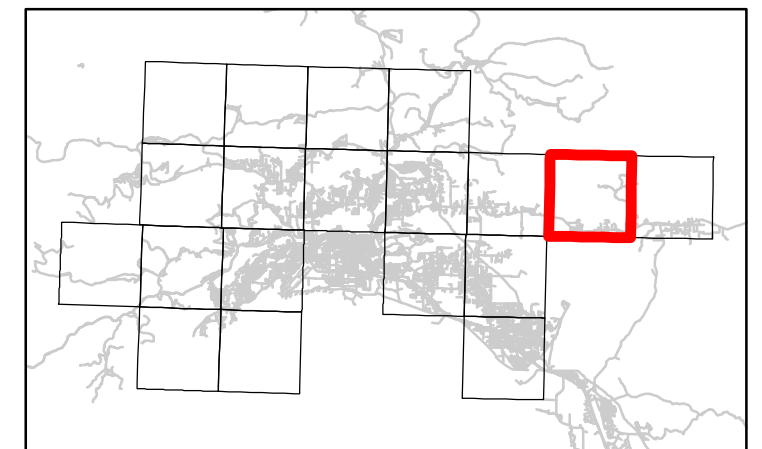




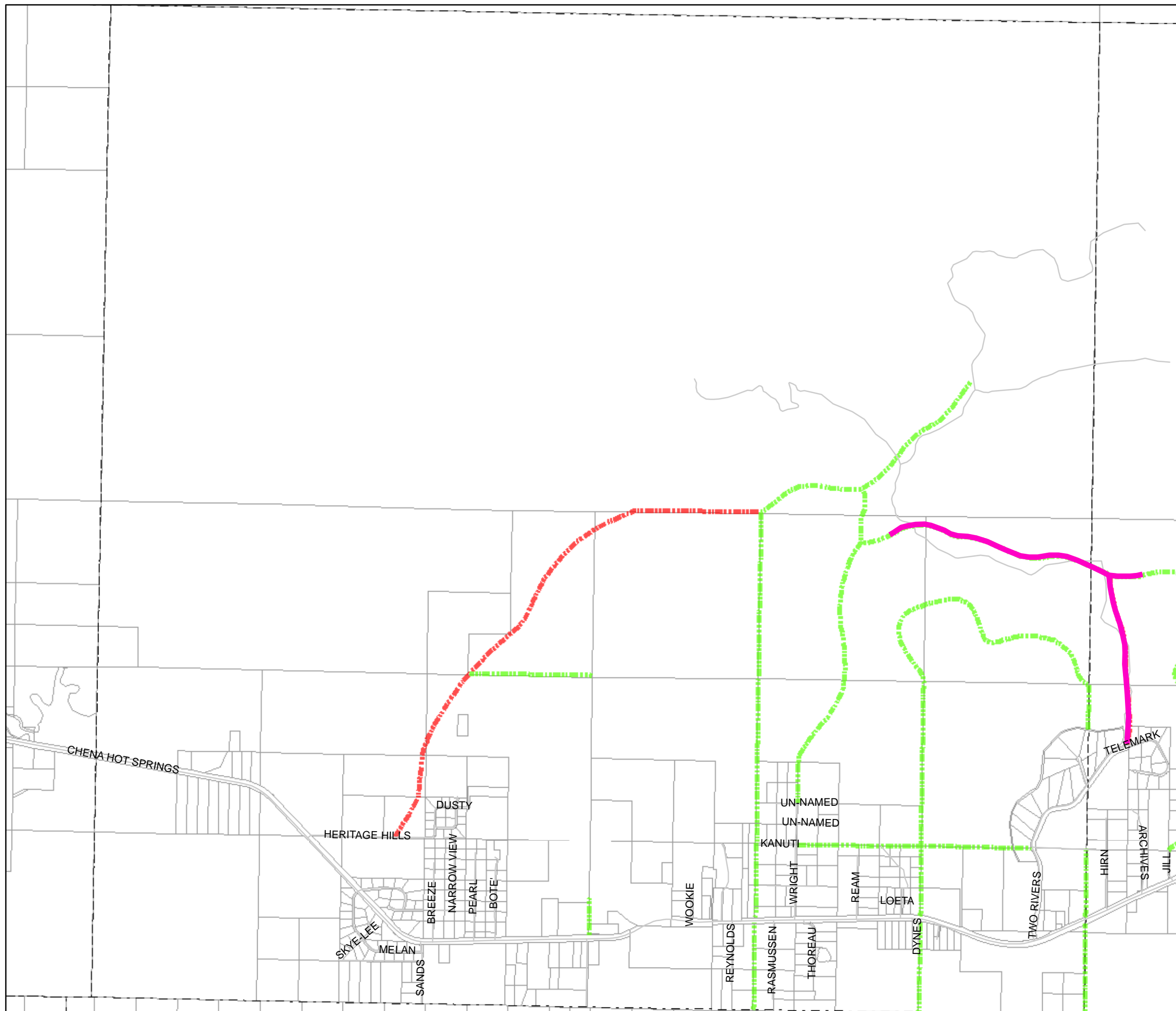
Comprehensive Road Plan

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01N 03E

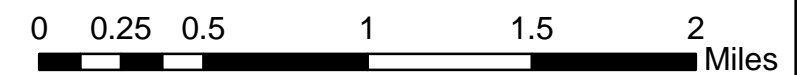
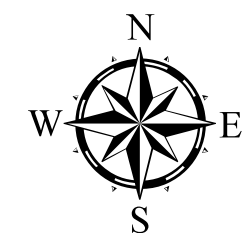
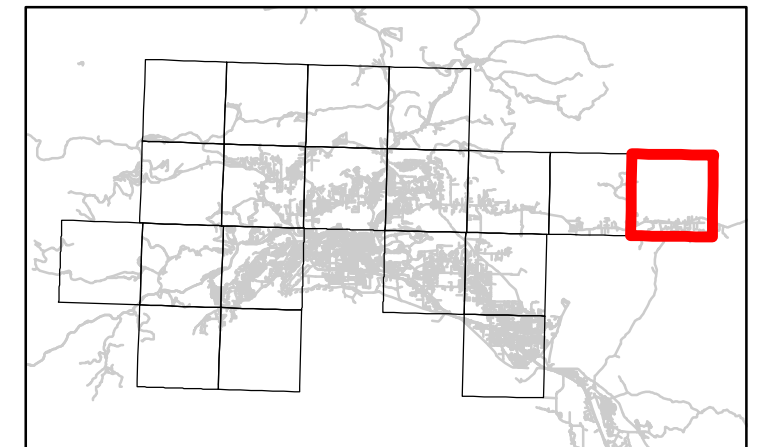




Comprehensive Road Plan

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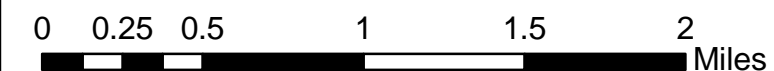
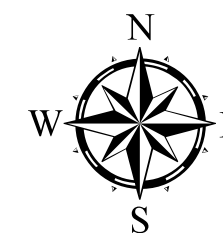
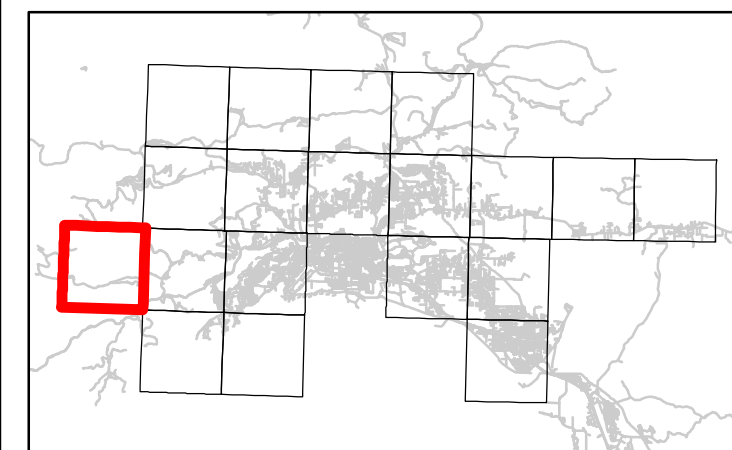
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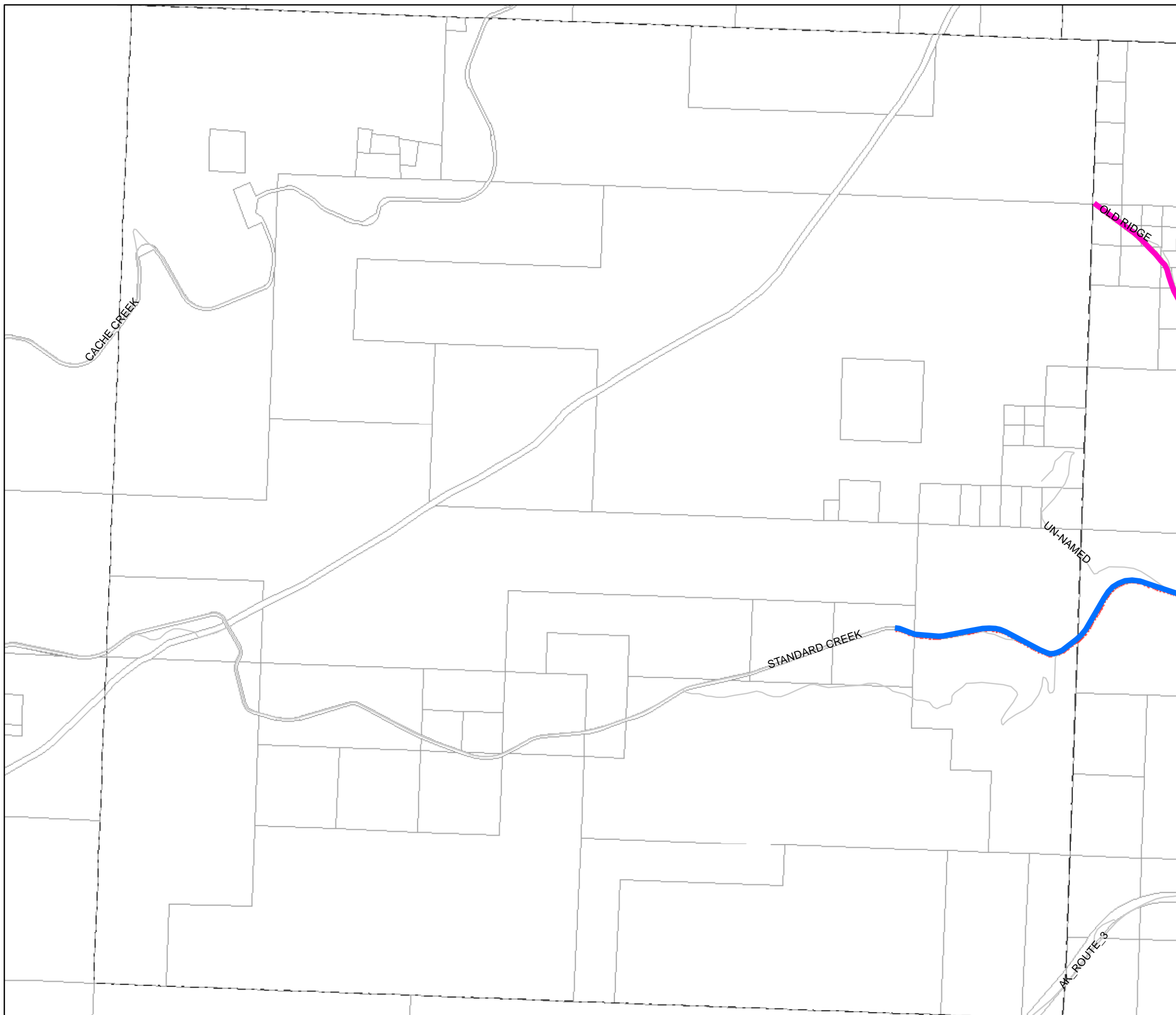
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01S 04W

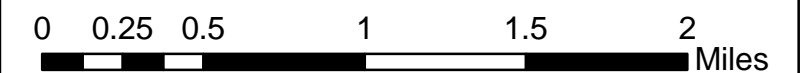
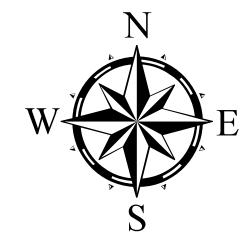
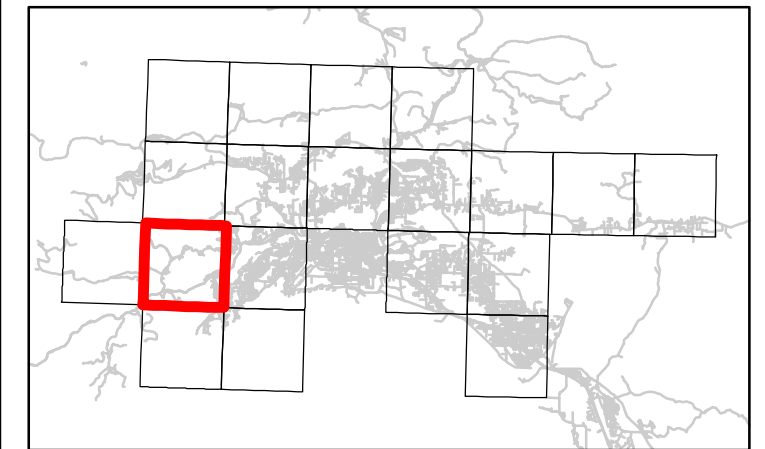




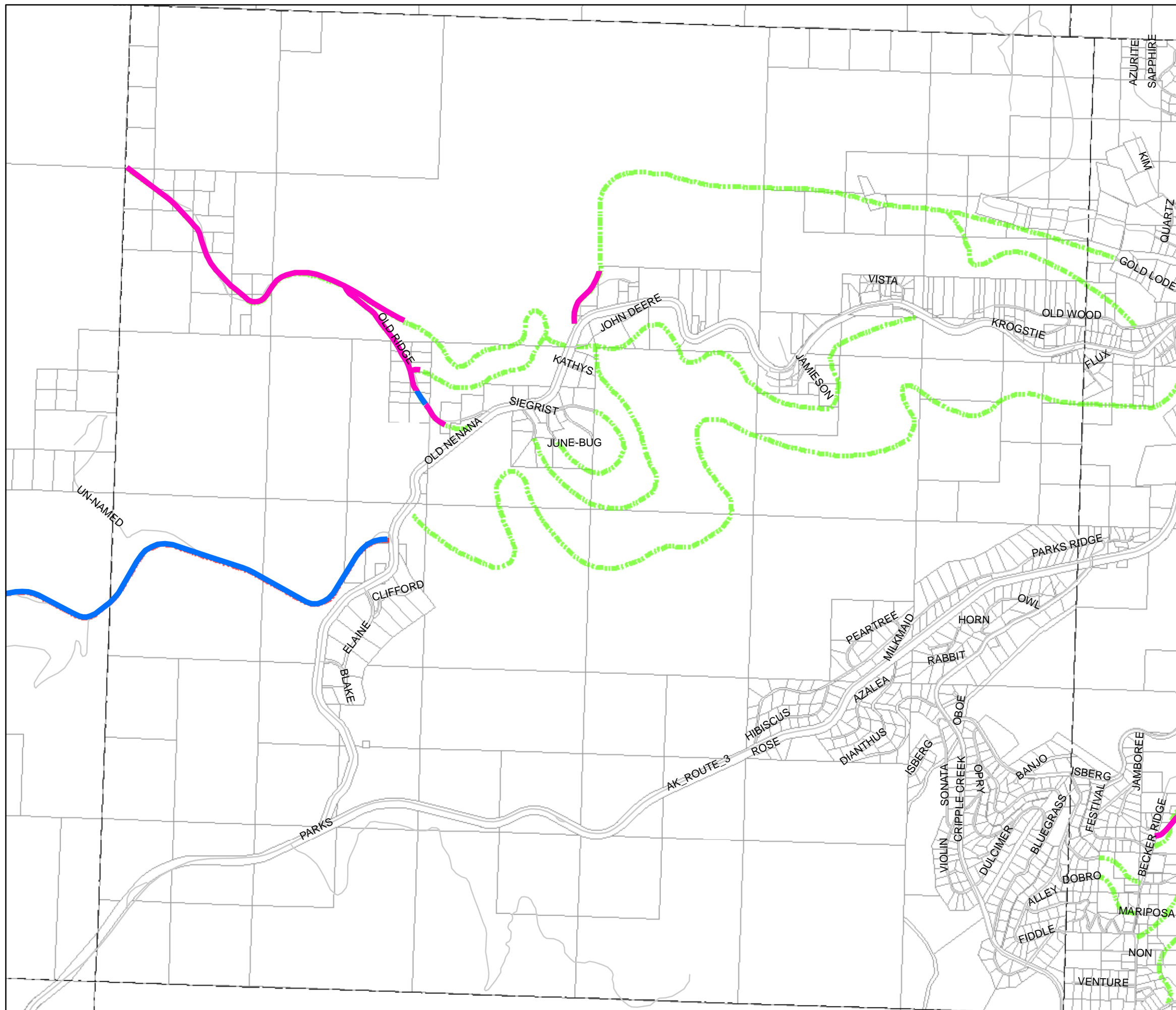
Comprehensive Road Plan

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01S 03W

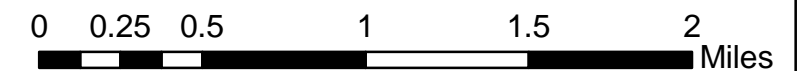
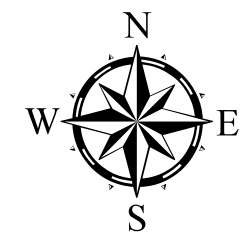
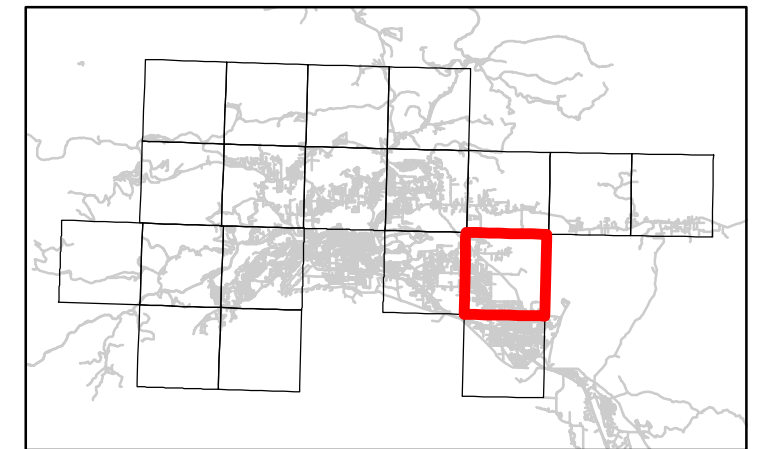




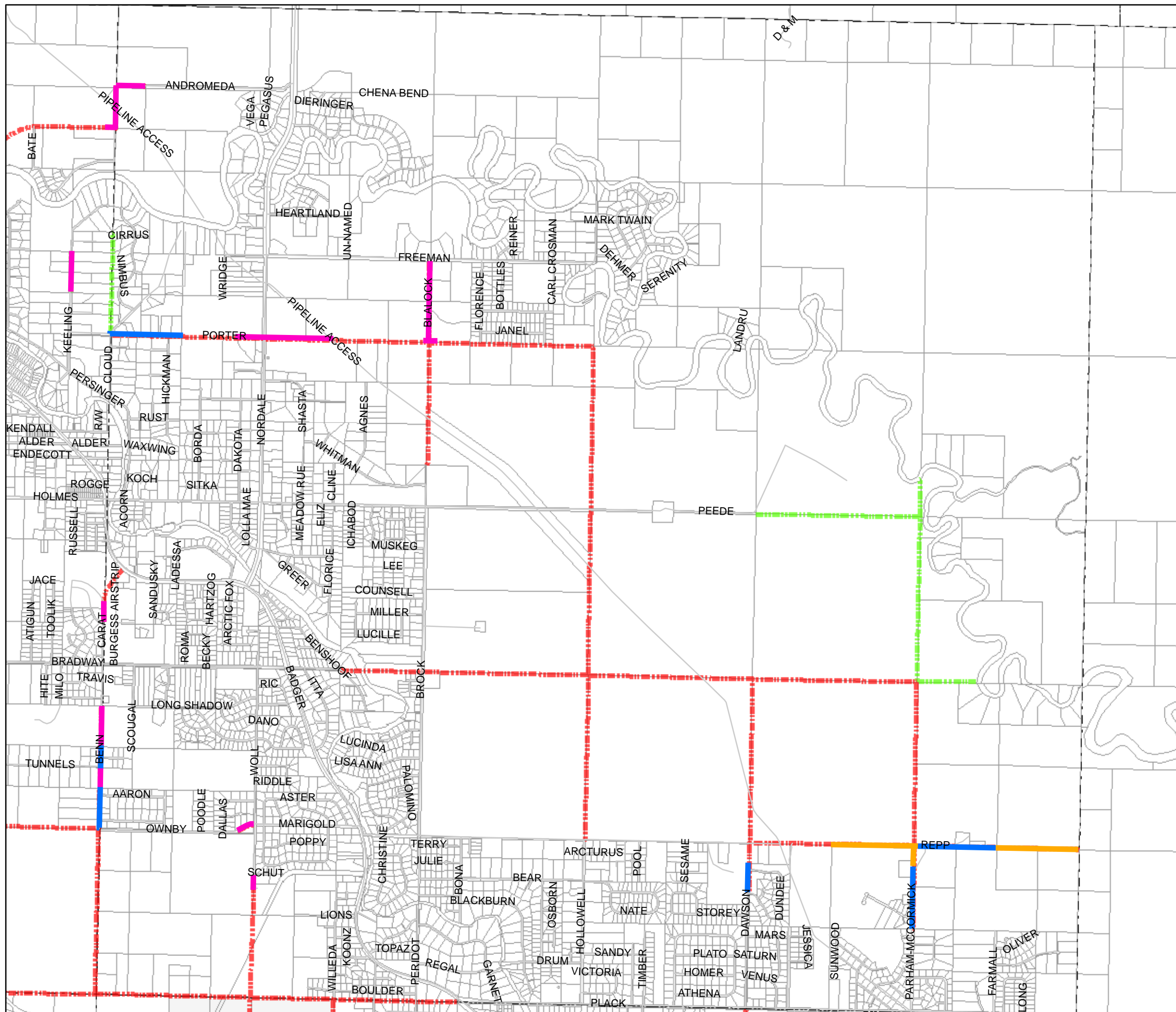
Comprehensive Road Plan

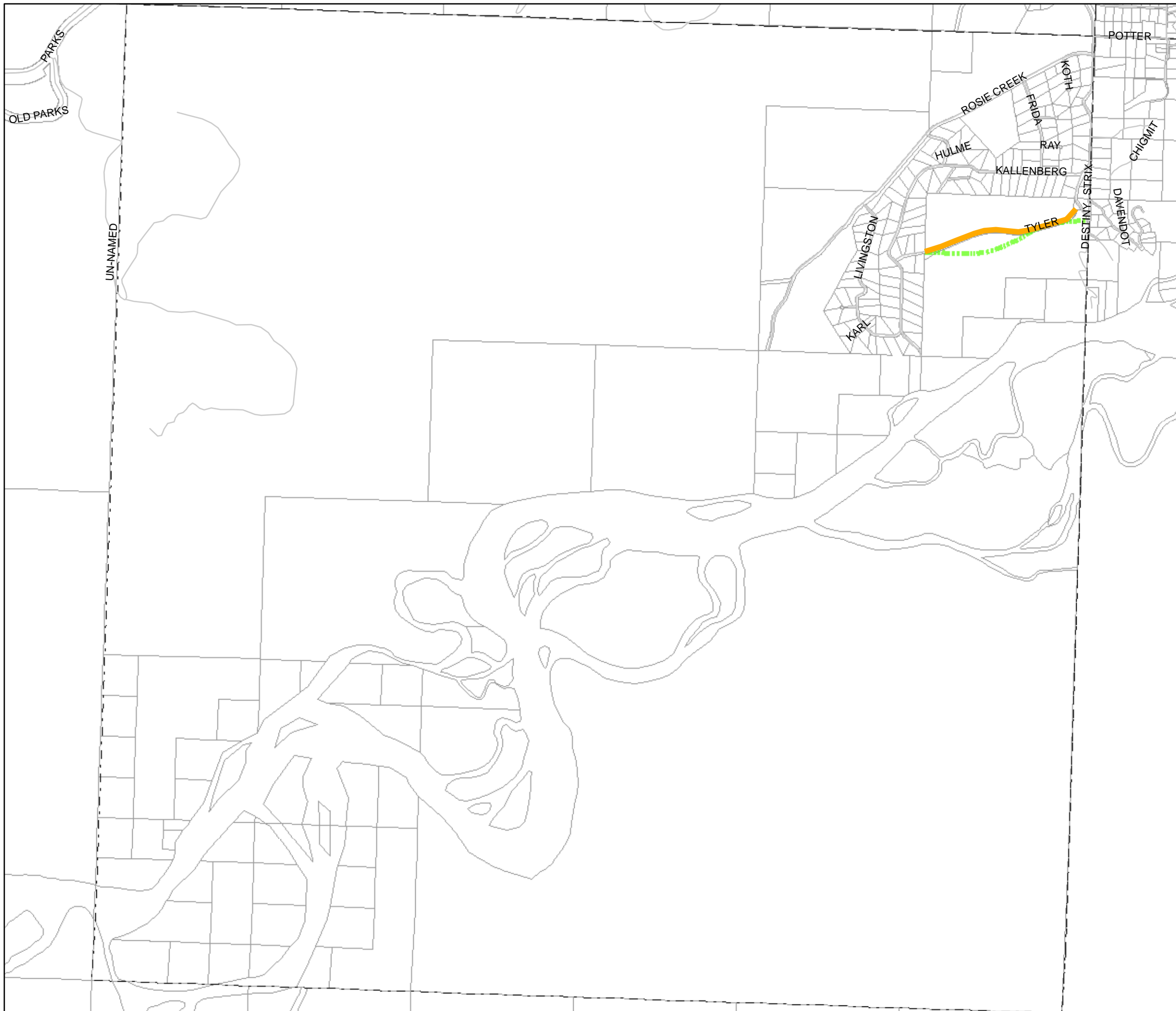
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01S 02E

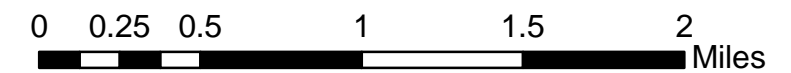
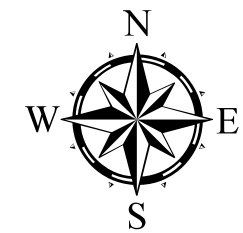
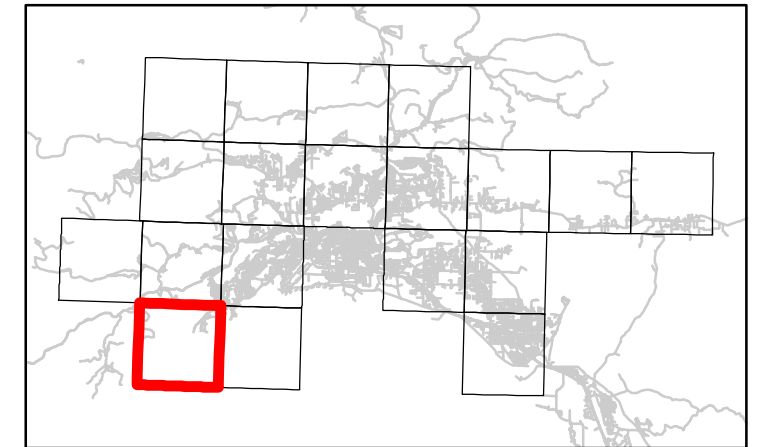




Comprehensive Road Plan

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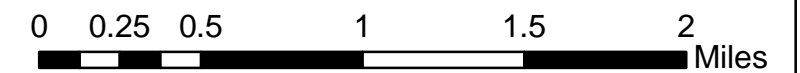
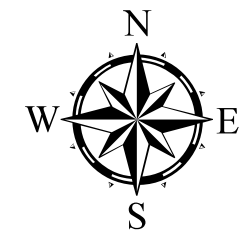
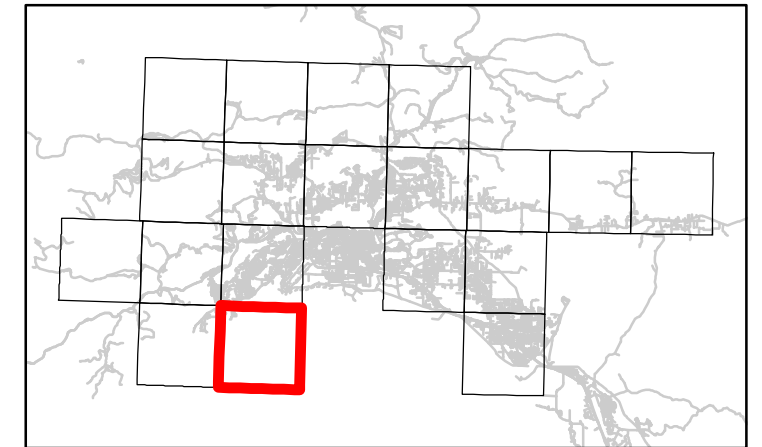
02S 03W



Comprehensive Road Plan

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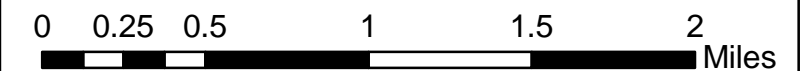
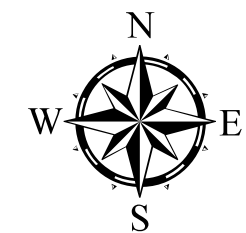
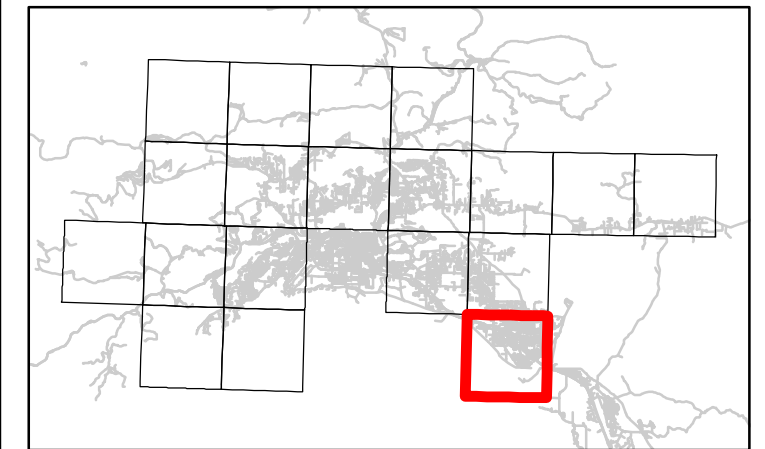
02S 02W



Comprehensive Road Plan

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02S 02E

