

2021

# SNOW AND ICE CONTROL POLICY



Public Works

City of Cassville, Missouri

1/1/2021

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## Introduction

### Purpose

The purpose of the Snow and Ice Control Policy is to establish and maintain uniform definitions and procedures concerning snow and ice control operations for the City of Cassville. The City will provide a defined level of service in a safe and cost-effective manner, taking into account safety, budget, personnel, and environmental concerns.

This policy does not guarantee that streets, parking areas or other public property will be free of snow and ice after execution. Bare, dry pavement should not be expected and will not always be provided. The objective is to develop and maintain an adequate driving surface for properly equipped vehicles and drivers prepared for winter driving conditions.

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### Emergency Status

The initial response to a winter storm is an emergency operation that takes precedence over other non-emergency work for the Public Works Department. All department staff should expect to be diverted from their primary roles to assist with ice and snow operations until the emergency status phase has ended.

### Scope

The concepts, guidelines and procedures contained in this document are applicable to publically owned and accepted streets within the corporate limits of the City of Cassville, Missouri, except as stated herein. Excluded from the scope of this policy are privately owned driveways and roads, public roads that have not been accepted for maintenance, state owned and maintained highways and those public road segments which, by mutual agreement, are maintained by the special road district.

## Policies

### Responsibilities

The responsibility for implementing the snow and ice control policy lies with the Public Works Director and Public Works Foreman, or their designees. Outside of normal working hours and due to authorized leave the Public Works Director may choose to authorize additional personnel as conditions may warrant.

### Annual Training and Preparation

Prior to the start of the snow season, the Public Works Department will conduct training activities for personnel that will be involved in snow control activities. The training will consist of classroom and hands-on equipment training, including the operation of sanders, snowplows and front-end loaders. A “dry run” will be conducted to ensure all equipment is operational and to prepare inexperienced drivers for any obstructions they may encounter.

### Weather Monitoring

Supervisory staff will monitor weather conditions during winter storm season with the goal of devising a response for every storm that will impact travel. It is recommended that numerous forecasts be reviewed with

an emphasis on direct broadcasts on regional conditions as produced by the National Weather Service. Links to beneficial online resources are:

NWS 7 Day Forecast	<a href="https://forecast.weather.gov/MapClick.php?lat=36.68218480000013&amp;lon=-93.86952479999996#.W-RFtfZFyUn">https://forecast.weather.gov/MapClick.php?lat=36.68218480000013&amp;lon=-93.86952479999996#.W-RFtfZFyUn</a>
NWS Severe Weather Briefing	<a href="https://www.weather.gov/sgf/embrief">https://www.weather.gov/sgf/embrief</a>
KY3	<a href="https://www.ky3.com/weather/">https://www.ky3.com/weather/</a>
Weather Channel	<a href="https://weather.com/weather/today/l/65625:4:US">https://weather.com/weather/today/l/65625:4:US</a>

### Commencement of Operations

The type, severity and timing of winter storms can vary substantially as can current and expected local activities (public school scheduling, shift work at major employers, etc.). Due to these factors the precise timing of the



commencement of snow and ice control activities cannot be easily defined. The City will be proactive in pre-staging equipment and staff and commencing operations at the onset of predicted heavy frozen precipitation. For storms with smaller intensities, or more uncertainty in the forecasts, the beginning of operations may result from monitoring local road conditions or notification from the Cassville Police Department.

The expectation is that every winter storm with the potential to impact the City's transportation network will be monitored and a plan for commencing operations will be developed that is proportionate to any particular storm's impact.

In conjunction with the commencement of operations the Director and/or Foreman will devise and communicate an initial response plan for the event. The plan should indicate anticipated staff and resource usage as well as a preliminary operational plan of attack. The plan should be shared with local public safety

supervisors and the City's administration.

### Use of Sand, Salt and other Chemicals

In many cases effective Ice and Snow Control requires the application of deicing and traction enhancing materials. The City will use sand, natural salt and possibly other chemicals as conditions warrant. These materials are not naturally found on the surface of the region and due to concerns of environmental impact the use of such substances will be minimized to those levels needed for the benefit of the health and welfare of the community. Under these circumstances the City will not be responsible for inconveniences or minor damages due to the use of sand, salt or other chemicals applied within public right of way.

### Heavy Snow/Ice Priorities, Levels of Service

With a defined and finite amount of available resources and the need to provide the greatest level of safety and benefit to the traveling public, in an efficient manner, the City must prioritize certain streets above others. Topography, normal traffic volumes and current local events will be factored into a prioritization scheme that can be tailored to the timing and intensity for each specific winter storm. Generally, streets with higher intensity use will have a higher priority and level of service for snow removal. Minor streets which require proportionally

more time for snow removal for the amount of traffic served have lower priority. A generic and universal description of objectives in priority order is shown below and mapped priority routes and illustrated in Appendix 1. In some events the completion of these objectives (Levels) may be performed simultaneously.

Level 1 streets and locations may be plowed/treated multiple times or even continuously during a heavy snowfall event.

- Level 1 Main thoroughfares, public access to Public Safety, Public Works and emergency medical facilities, bridges and overpasses, low and medium volume roads with extreme slopes.
- Level 2 Public access to other local government and school facilities, public roads in business districts, access to municipal utility facilities.
- Level 3 Parking areas for public safety agencies\* and City Hall, low and medium volume roads, Airport taxiways and runway. Pedestrian access to City Hall.

\* By mutual agreement, the City will perform snow and ice control at the Cassville Fire District Station 1, Barry County Sherriff's office, Barry County Jail and Barry County E-911 facilities.

During significant and severe storms, the City must be prepared to assign personnel and equipment to maintain Level 1 (priority) routes first. If in fulfilling the need to have all priority streets safe and passable, when resources are limited, plowing of all other priorities may be stopped at any time so resources can be shifted to priority routes.

*It is not uncommon for snowfall rates or blowing/drifted snow to overwhelm available response forces. When this occurs it is important for residents to be advised to avoid non-essential travel and for local resources to focus on the prioritization scheme.*

The following table provide a visual timeline for the progression of plowing/treating streets during a heavy snow event.

	Single driving lane	Two driving lanes	Edge of roadway or curb	Single driving lane	Two driving lanes	Edge of roadway or curb	Single driving lane	Two driving lanes	Edge of roadway or curb
Priorities/Level of Service	WINTER EVENT TIME LINE								
	Heaviest rates of precipitation				⇒	⇒	⇒	⇒	Falling precipitation ended
1. Main thoroughfares	X	X				X			
2. Access to activity centers				X	X				X
3. Low volume roads							X	X	X

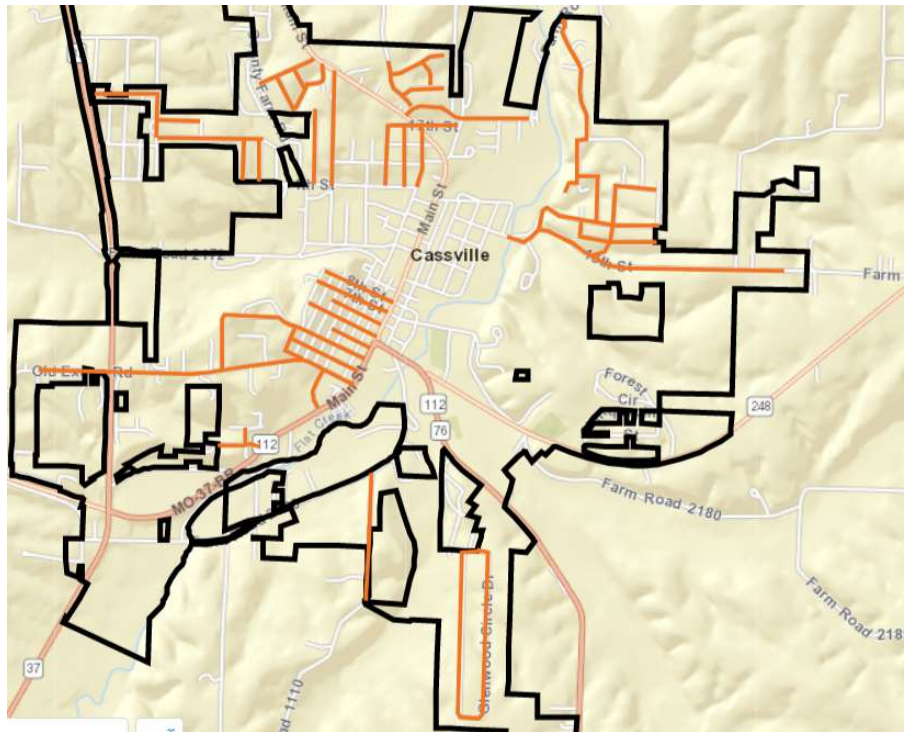


### Light to Moderate Snow/Ice Priorities, Levels of Service

Heavy snow/ice events (8+ inches of snow) may not occur every winter or even in successive seasons. An organized response is still needed for less intense events that disrupt community travel. Since snow plows are only marginally effective of accumulations of less than two inches the typical response is using sand and salt applications to combat a loss of traction or stopping abilities. Under these conditions resources will be focused on roadways that have a substantial slope. An illustration of hilly city streets is shown below however operator training and experience in local conditions is best.

When temperatures are at or only slightly below freezing, the icing of driving lanes may be limited to elevated or exposed surfaces. A summary of Cassville's Bridge and large culvert locations appear to the right.

For these light/moderate events it must be presumed that drivers will exercise good judgement and caution. Isolated ice patches may not necessitate an after-hours call in.

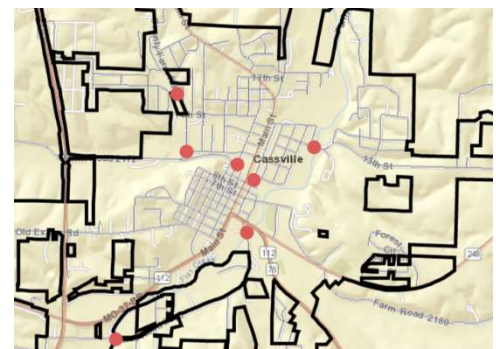


*Cassville Bridge/Culvert Inventory*

<i>East 13<sup>th</sup> Street</i>	<i>400 Block Farm Road 2182 (Sale Barn Road)</i>
<i>800 Block County Farm Road</i>	<i>900 Block East Street</i>
<i>1000 Block Townsend Street</i>	<i>200 Block Farm Road 2182 (Sale Barn Road)</i>
<i>1400 Block County Farm Road</i>	

### Municipal Airport, Priority, Level of Service

The Cassville Municipal Airport is to be included as a facility to be serviced list but there is limited capacity to clear taxi ways and the runway to any operational standard. Snow plows can be used for the heavier snowfalls however these can be less than effective for accumulations of less than 2". In almost any circumstance simple plowing may leave ice or packed snow that can make it dangerous to attempt to take off and especially so for landings. Available resources do not include rotary brooms or the type of deicer needed for smaller storm events and as a follow up to snow plowing. The use mixture of lime chips and mined road salt on city streets is not suitable for use at a general aviation airport. Even



straight rock salt is not guaranteed to be sufficiently activated so as to melt completely and not cause foreign object damage. Any salt product has a high potential for corroding the aluminum structure and surfaces of aircraft. The taxiway and runway are at the low end of the priority list for active snow and ice control. Sunshine and favorable temperatures will continue to be the best treatment for general aviation activities after a winter event.

### Deviations from Policy

Deviations from the policies and procedures stated herein may occur due to unusual or extraordinary circumstances. Every winter storm has unique characteristics such as storm intensity, duration, wind, temperature and moisture content that influence the methodology used in response to each storm.

Deviations and exceptions from the general priorities and procedures may be made when, in the judgment of a responsible authority, such deviations will best support meeting established objectives and ensuring public safety.



### Operations Planning

#### Storm Intensities and Operational Limitations

Unforeseeable but not unusual circumstances may cause delays in completing these objectives. Such circumstances may include weather conditions that endanger the safety of snowplow operators and/or safe and effective operation of equipment, commuter traffic, disabled vehicles, poor visibility conditions, parked cars along streets, assistance to emergency response vehicles, equipment breakdown, and personnel shortages.

#### Equipment and Other Resources

The Public Works Department has a variety of equipment to utilize in snow removal activities. Equipment includes three (3) pickup trucks with plows, two pickup trucks with plows and salt spreaders, one dump truck with a plow and salt spreader and three (3) backhoes that can be used in snow and ice removal. Whenever plows are active, additional personnel may be called in to support the operation and to make necessary mechanical repairs.

#### Staffing

There are 12 full time employees in the Public Works Department; most are primarily assigned to municipal utilities, parks or other areas. There is only one full time employee dedicated to streets however all Public Works staff are trained appropriately to be temporarily assigned to snow and ice control. The Public Works Director and several administrative staff at City Hall provide support for snow operations.

#### Communication and Situational Awareness

Successful operational planning is dependent on maintaining current knowledge of local activities, or the cancelation thereof, as well as changes in forecasted temperatures and precipitation. A direct line of communication with the school district is key.

## Continuation and Cessation of Activities

Although no snow event is exactly the same, it usually takes 8-10 hours AFTER the snow stops falling to complete high priority roads and facilities.

Residential streets generally take an additional 24-36 hours to complete, assuming there are no interruptions or additional precipitation that require the diversion of resources back to higher priority streets.

During larger storms, traffic on low-priority streets usually causes the snow to become hard packed or icy, before it can be treated or plowed. In this case it may be several days for the packed snow and ice to be plowed or melt off these streets.

When snow or ice has become compacted or when temperatures are such that additional plowing or sanding is ineffective, operations may be discontinued until conditions improve.

When public ways are generally safe to travel, emergency plowing operations will cease; additional treatment or plowing may be assigned to Public Works personnel during normal duty hours.

## Sanding/Salting and Pre-Treatment

Cassville has constructed a sand/salt storage facility that will hold approximately 60 tons of sand and/or salt. It is expected that one of the bins will contain manufactured sand, one will contain straight medium road salt and the third with contain a mixture of 3-parts sand to 1-part salt. The mixed product will be used for general road treatment to promote both

melting/thawing and traction.

Temperatures, the type(s) of frozen precipitation or a specific operational plan may call for a variation in the mixture. Pretreating roadways for example, is usually completed with a much higher salt content since the material may be quickly covered by frozen precipitation rendering the sand ineffective at providing traction.

## Public Information

### Requests for Service

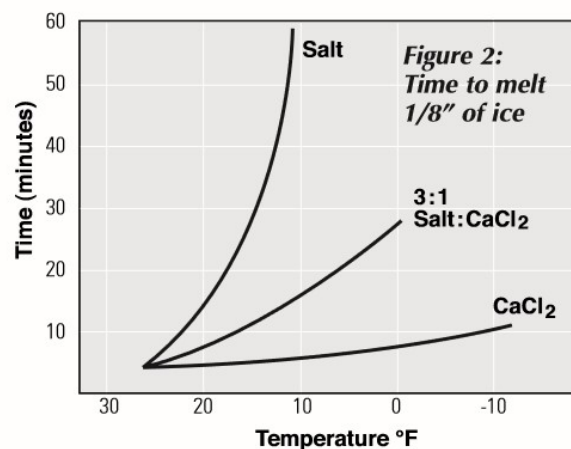
Most snowplow operators are assigned a route based on the priorities established by this policy or a more

specific operational plan. It is inefficient therefor to disrupt their assignments responding to individual concerns. Calls for service will be logged and periodically forward to snow removal supervisors for review and potential action. Supervisors will use these logs to direct operators to areas of concern, after they have achieved the goals established within existing snow removal policies and operation plans.

Residents and encouraged to report hazardous conditions but should be cognizant that such conditions may exist across the entire community. Supervisors will be notified immediately of hazardous conditions or new

**Time** The longer a deicing chemical has to react, the greater the amount of melting. At temperatures above 20°F

both salt and calcium chloride can melt ice in a reasonable time. However, at 10°F it takes an hour for salt to melt 1/8" of ice.





snow accumulation on higher priority streets, roadways impacted by drifting snow or other emergency conditions.

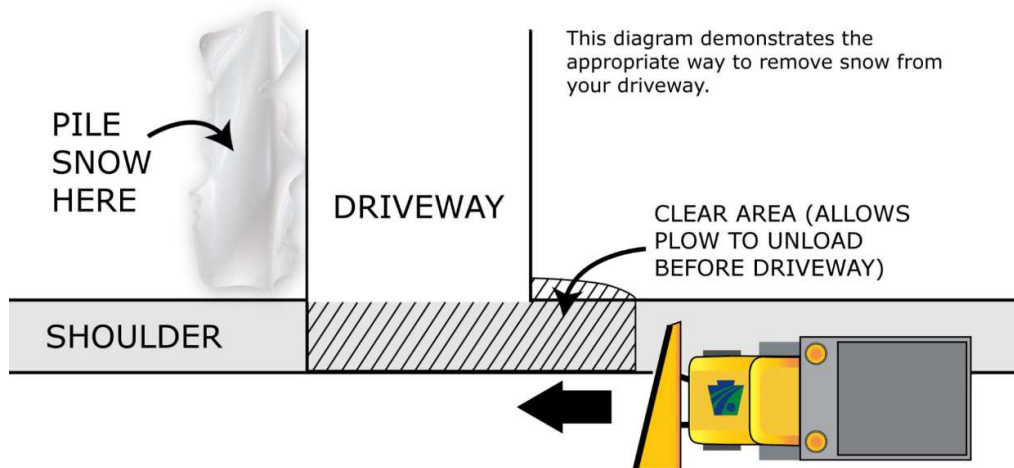
### On-Street Parking

Cassville does not formally restrict on-street parking during snow/ice events. However, residents should realize that on-street parking severely impacts an already hazardous task for snow plow operators. It is dangerous and difficult to plow narrow streets congested with parked vehicle.

On-street parking limits also a plow operator's ability to move the snow pack to the edge of pavement. Residents are strongly encouraged to move vehicles and/or trailers to an off-street location before or during a winter storm.

### Residential Driveways

One of the most frequent concerns generated in plowing snow on public streets is snow being deposited across residential driveways. As plows travel along streets, the snow accumulated on the plow blade must be ejected to right. The more snow that has fallen, the greater the impact is to landscaped areas and private drives.



One way residents can help this situation is to clear an "upstream" of their driveway and pile snow they have shoveled on the "downstream" side, instead of placing it on both sides at the end of the driveway. As shown in the illustration, this creates an open area where accumulated

snow from the plow can unload and avoids a new windrow of snow from being created across the driveway.

It is the policy of the City of Cassville to assist disabled residents by opening driveways that have been blocked by snow plowed from public streets. Logged requests for such assistance will be fulfilled when plow operators are available.

### Mail Delivery

The objective of snow plowing operations is to allow the resumption of normal commerce to include mail delivery by the US Postal Service. Plow operators will widen plowed streets to the edge of pavement or curb when other higher priorities have been completed. However due to wide variation in mailbox locations, sizes, etc., it is not possible to guarantee that the USPS will deliver mail at the cessation of plowing activities. Therefore, any final clearing adjacent to mailboxes is the responsibility of each resident.

### Damage to Personal Property

Damage to a roadside mailbox is a common complaint during snowplow operations. Only mailboxes actually hit by a snowplow will be the responsibility of the City. The City will not be responsible for damages to mailboxes,

support posts, landscaping or any other personal property located in the public right of way when the damage is caused by snow or ice ejected by a passing plow. Snow plowing is a necessary and expected activity and residents assume any and all risks when placing personal property in the right of way.

As with all claims, the City or its insurer will conduct individual reviews of all claims for damages associated with snow and ice control operations.

### Safety Guidelines

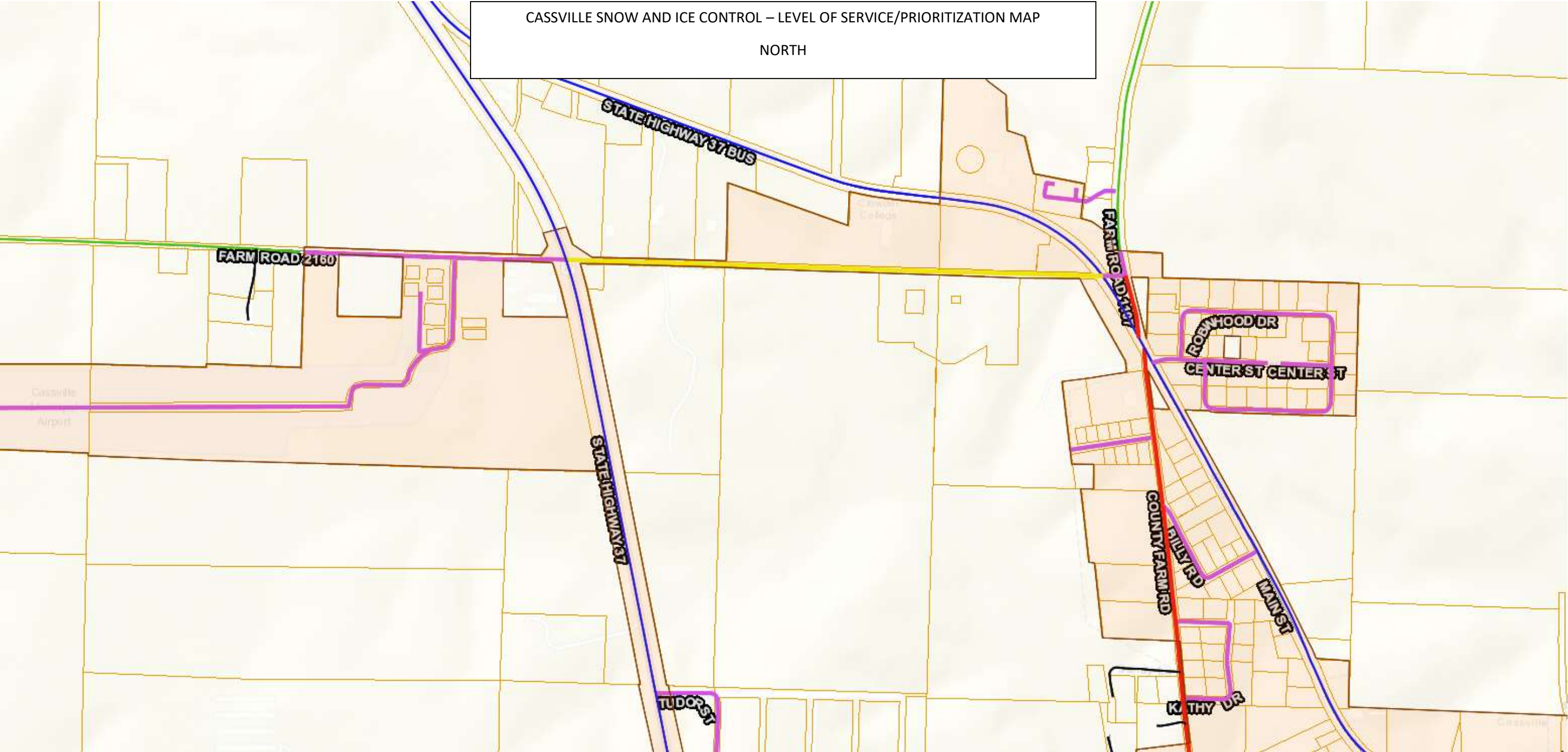
When trucks are plowing snow and/or spreading sand and salt, stay back from the vehicle at least 100 feet to avoid problems.

Plow trucks often have to back up. There are blind spots in the mirrors. For your safety, do not pull up directly behind them. They may not be able to see you.

When cleaning driveways or parking lots, do not put snow in the street. This can cause problems for other motorists.

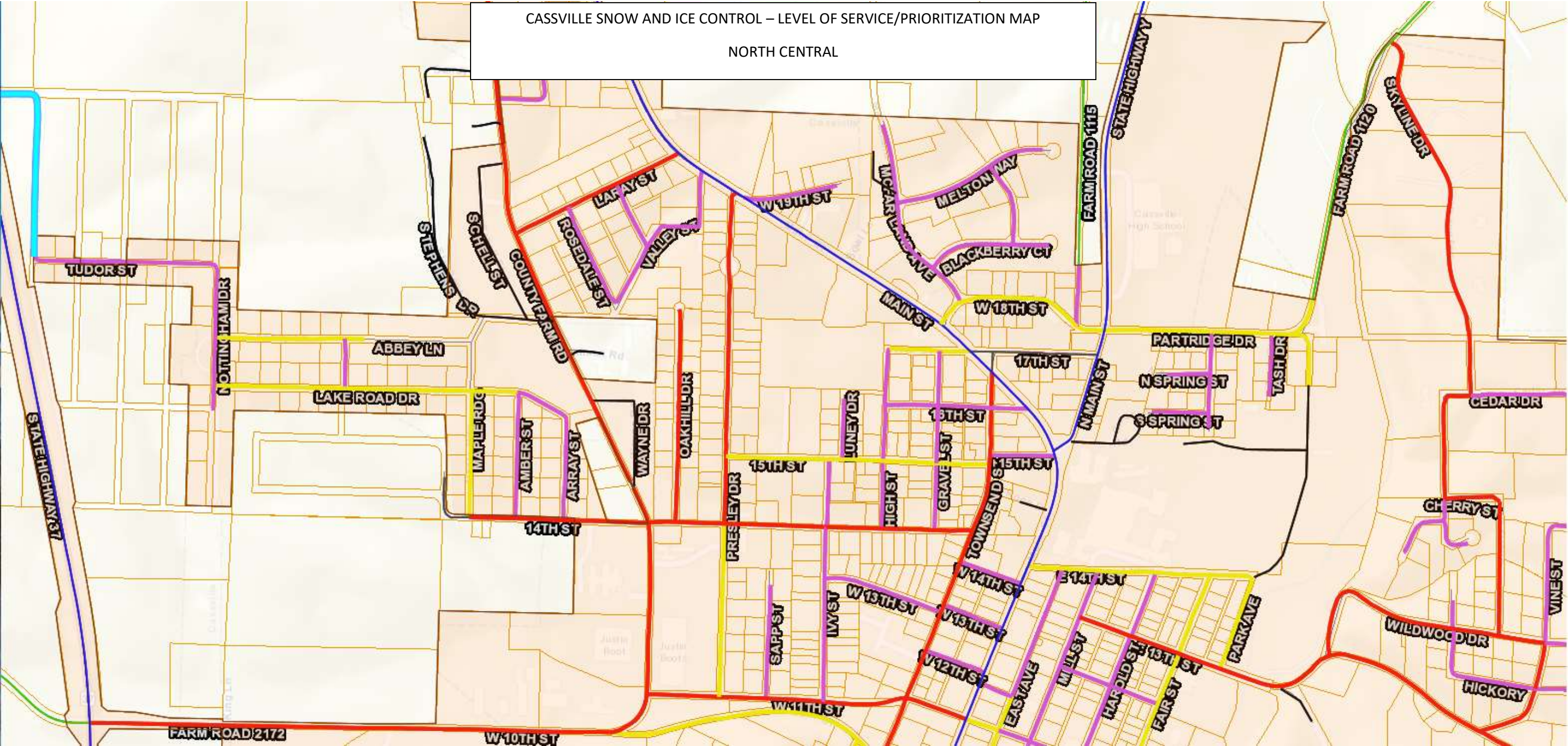
Plow trucks generally push snow to the passenger side of the truck (right side when looking at it from the rear). Never attempt to pass a truck on the right since there can be much more snow on that side of the vehicle.







### Appendix A - Maps



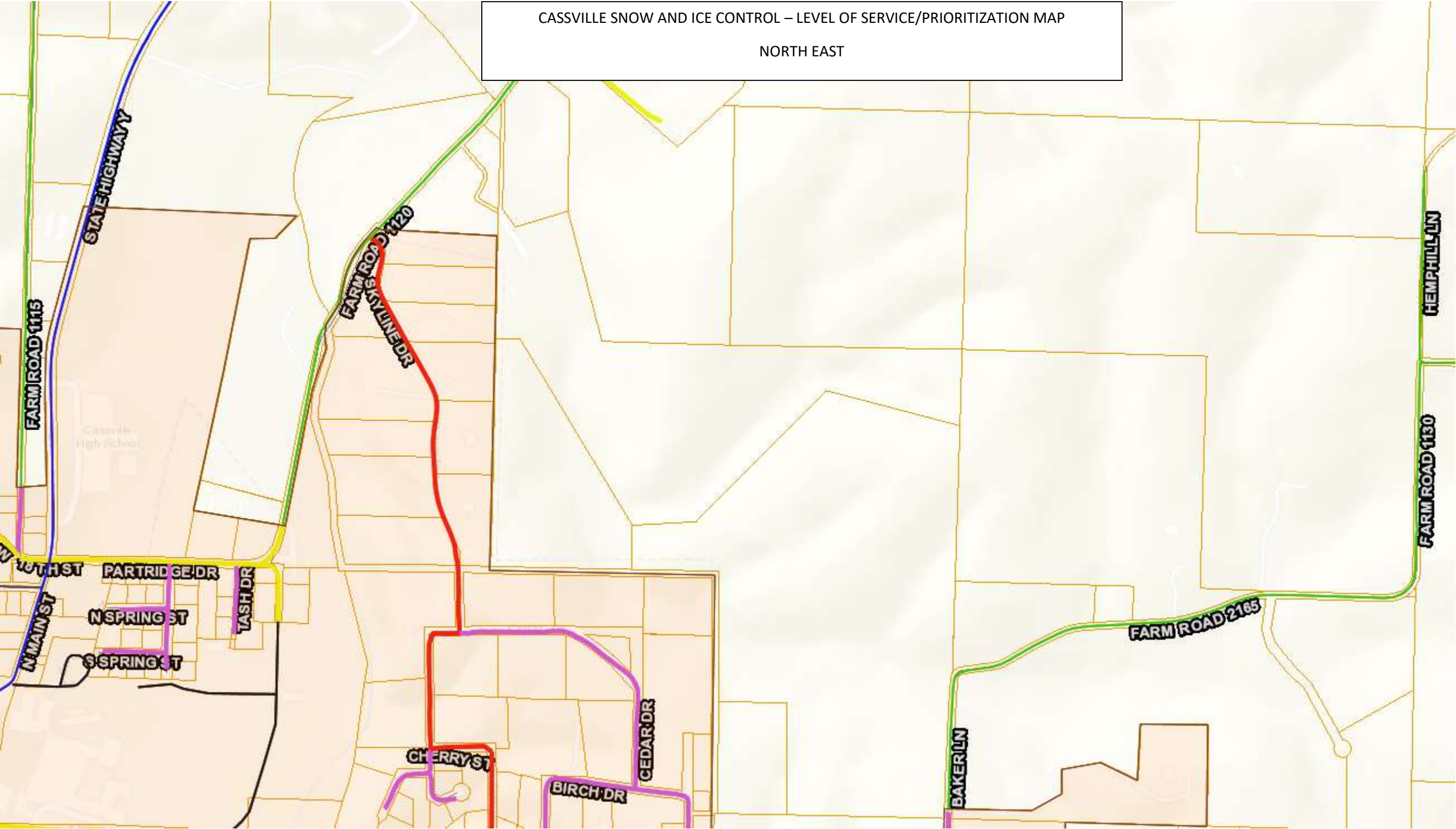
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	FLAT CREEK SPECIAL ROAD DISTRICT		CASSVILLE LEVEL 2 ROAD
	PRIVATE ROAD		CASSVILLE LEVEL 3 ROAD





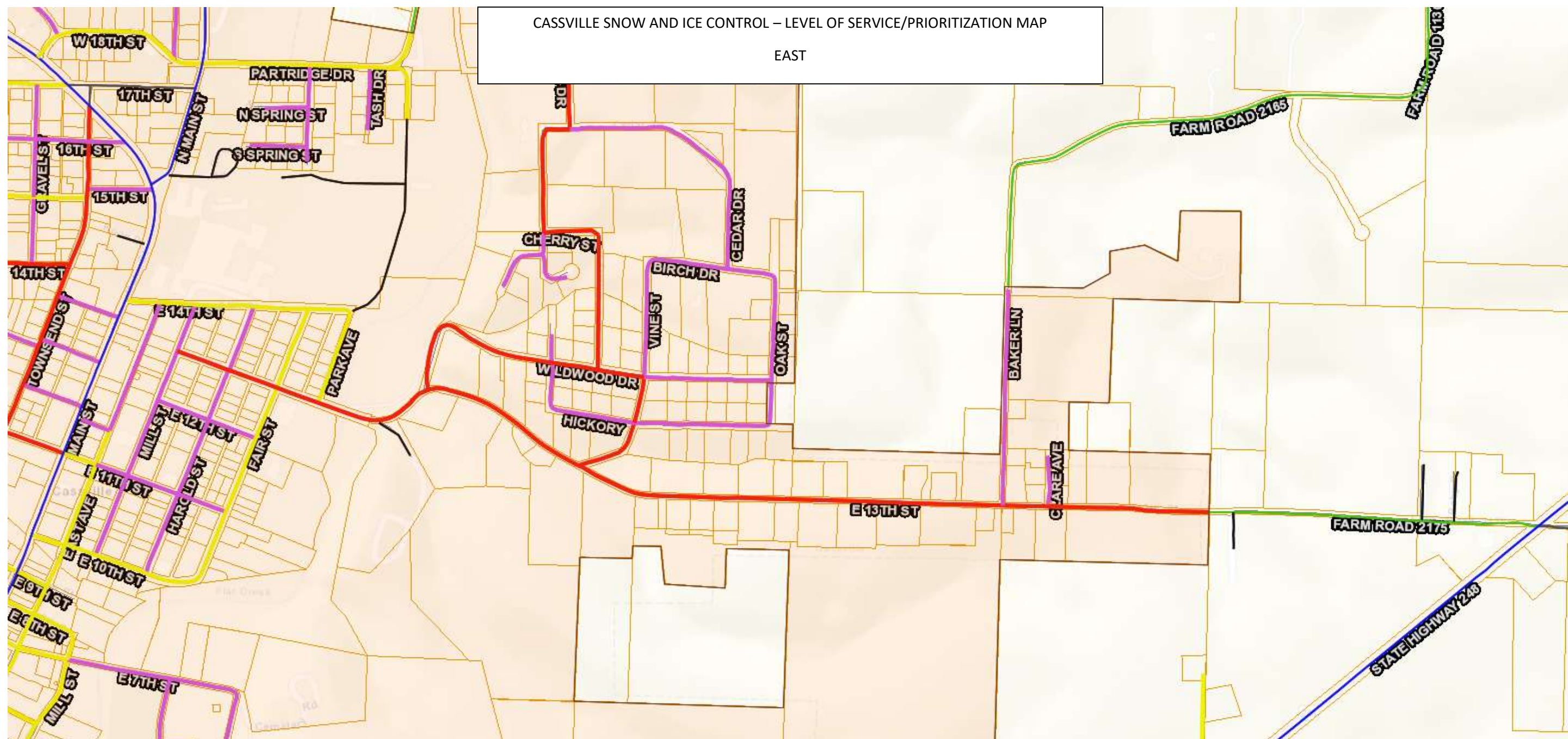
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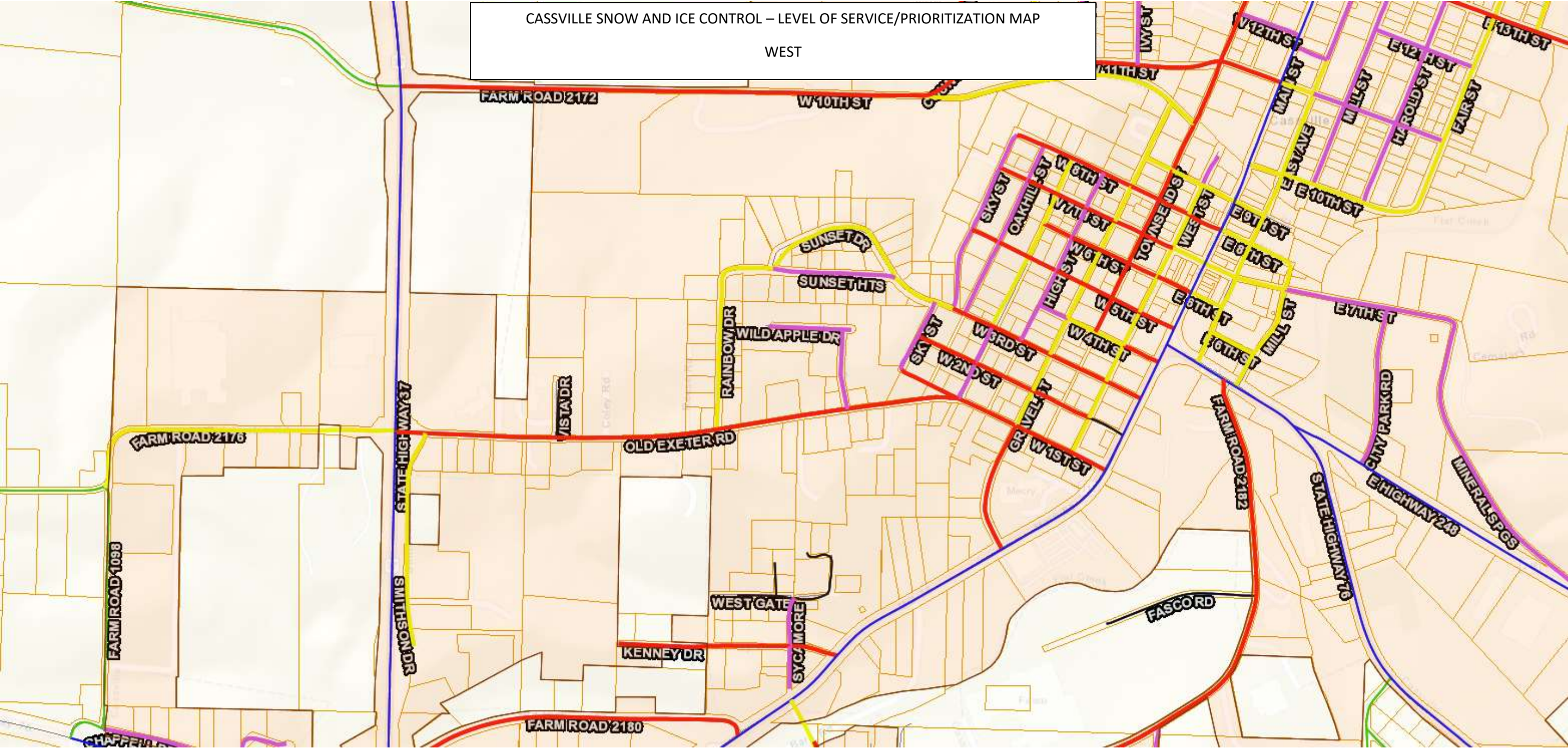
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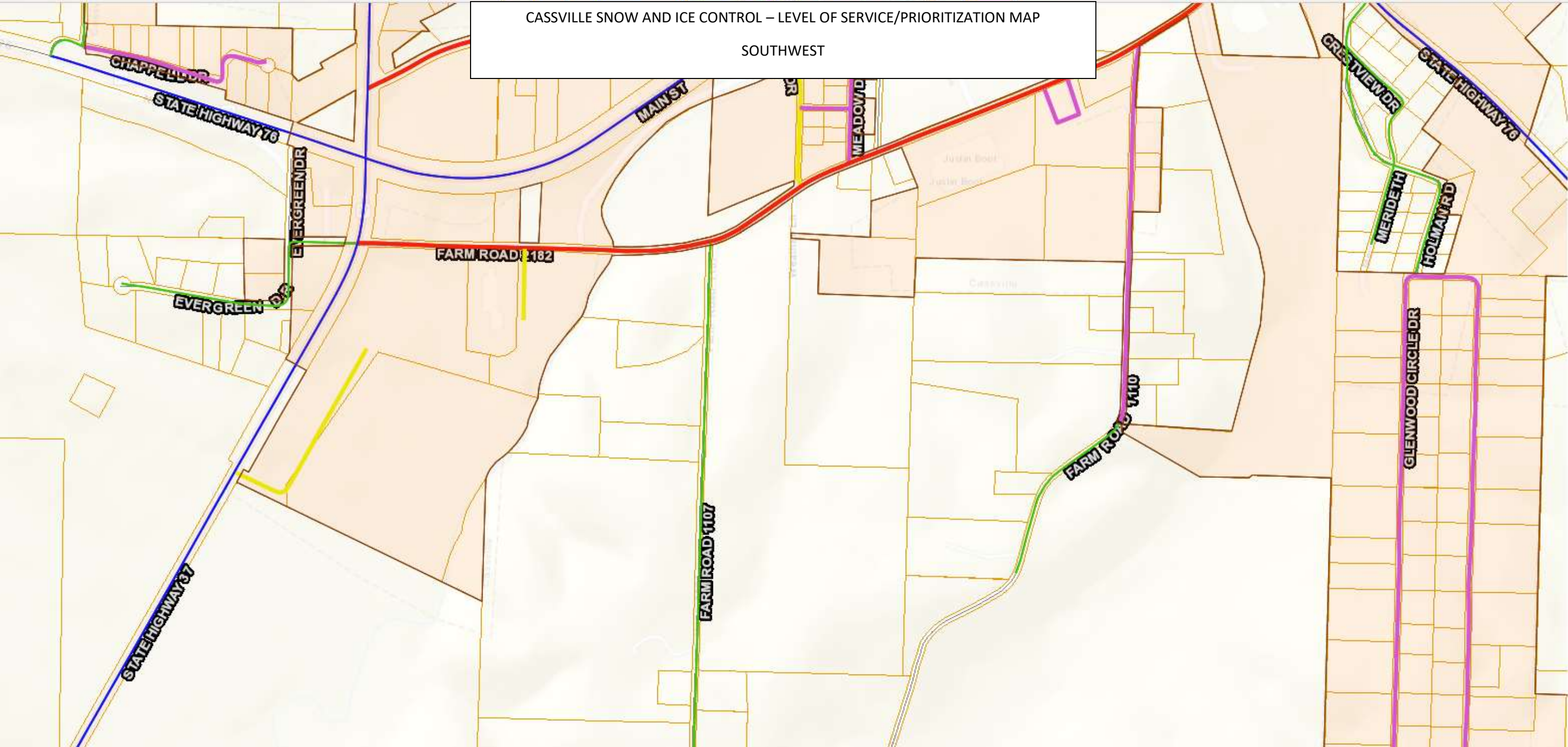
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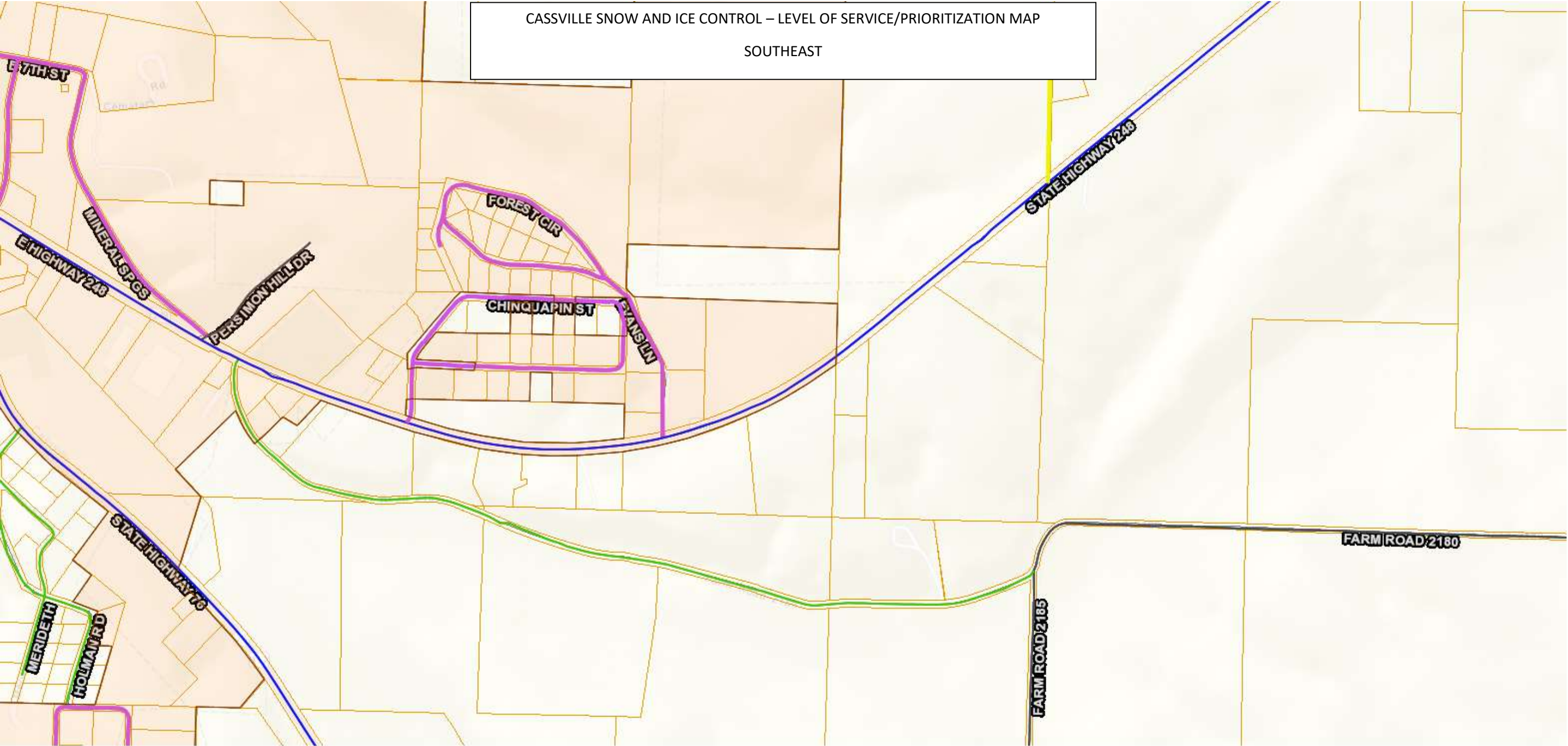








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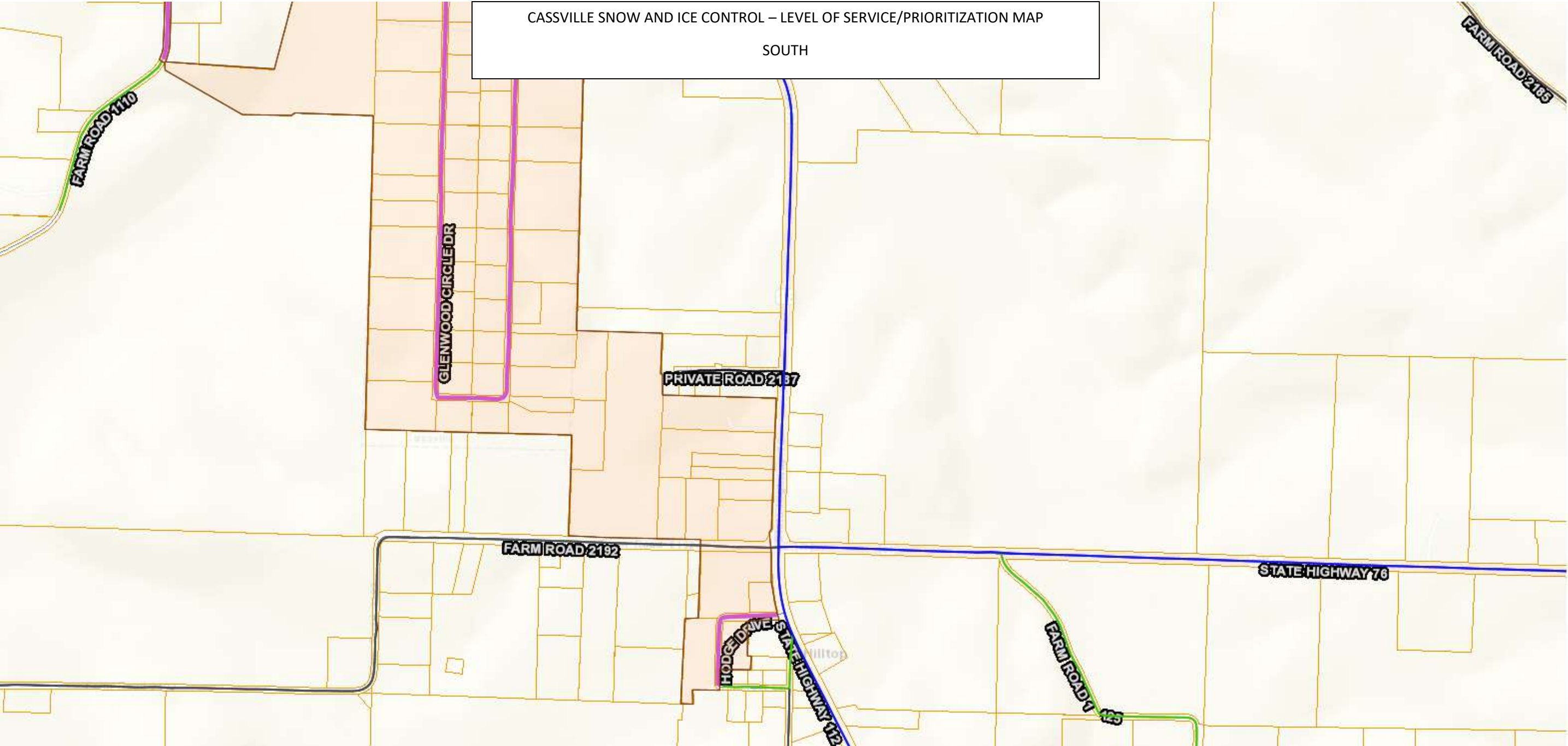








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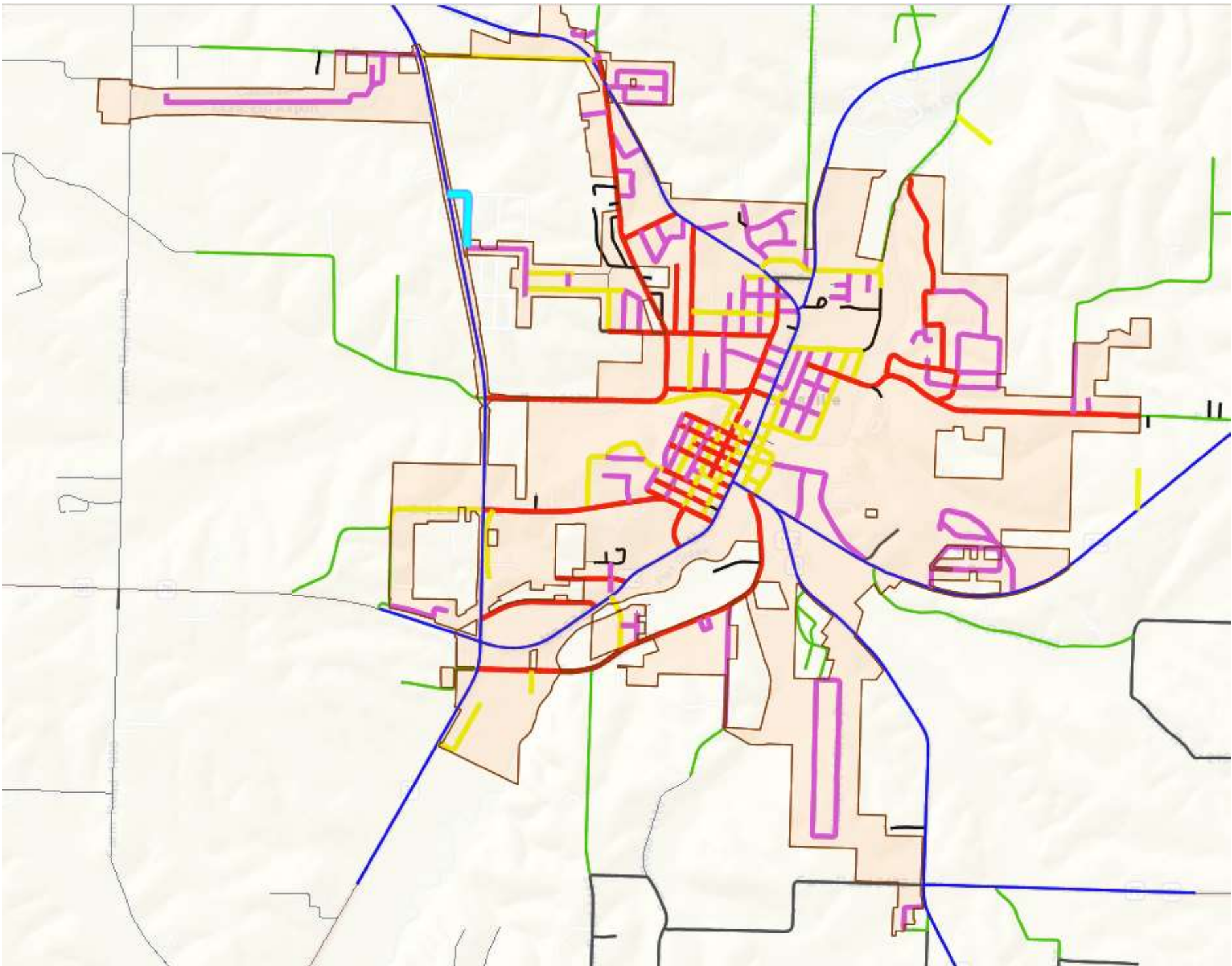
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