

1 PURPOSE AND NEED

1.1 PURPOSE

The purpose of this project is to provide a roadway connection to improve access across the Burlington Northern Santa Fe (BNSF) Railroad tracks between the Village of Big Rock and the Village of Sugar Grove as well as address future transportation needs in accordance with the Kane County 2040 Transportation Plan and other local land use plans. The needs for this project include improving and enhancing the safety of the users, improving mobility in the region, and enhancing system linkage and connectivity of the transportation network in the County.

1.2 PROJECT LOCATION

The *Project Study Area* is in the southwest quadrant of Kane County in the Village of Big Rock, Big Rock Township, and unincorporated Kane County, west of the Village of Sugar Grove. The project limits are north along Dauberman Road to the bridge over Welch Creek, US Route 30 approximately 3,600 feet west to 2,600 feet east of Dauberman Road, and approximately 3,000 feet west of Mary Drive to 1,500 feet west of Mary Drive along Granart Road. (See **Figure 1.1** for the Project Limits Map)

**Figure 1.1: Project Limits Map**



Existing Dauberman Road is classified as a major collector under the jurisdiction of Kane County Division of Transportation (KDOT). Dauberman Road begins at US Route 30 to the south and continues for approximately

eight miles to the north to Keslinger Road in Maple Park. The other roads within the project study area are classified and under the jurisdiction as described below:

- US Route 30: minor arterial, Illinois Department of Transportation (IDOT)
- Granart Road: minor arterial, Big Rock Township and Village of Big Rock
- Rhodes Street: minor collector, Village of Big Rock and Big Rock Township
- Dugan Road: major collector, Village of Sugar Grove

The existing T-intersection of Dauberman Road and US Route 30 is stop controlled on Dauberman Road. The existing land use in the area is mostly agriculture. Approximately 930 feet north of the intersection of Dauberman Road and US Route 30 is a private airstrip. There are commercial properties along US Route 30, east and west of the Dauberman Road intersection. The BNSF Railroad runs east-west just south and parallel to US Route 30. Welch Creek flows northwest to southeast under Dauberman Road north of the intersection with US Route 30 and under US Route 30 east of the project limits. East of the project limits, the intersection of Dugan Road and US Route 30 was reconstructed by IDOT in 2016, and a new roundabout was completed at the intersection of Dugan Road and Granart Road by the Village of Sugar Grove in 2015.

Near the south end of the project study area and east along Granart Road is the Kane County Forest Preserve (Big Rock Campground) and the Girl Scouts of Northern Illinois Camp Dean which hosts various events from July through September. The forest preserve entrance is across from Marry Drive, while the Girl Scout camp entrance is approximately 0.5 miles further east at Camp Dean Road. Continuing east along Granart Road is Rich Harvest Farms, a private golf course which hosts private event and professional tournaments during the summer months.



*Intersection of Dauberman Road and US Route 30 looking south*

## 1.3 PROJECT BACKGROUND

### 1.3.1 Location History

Dauberman Road and Granart Road were originally constructed over 70 years ago and have undergone periodic resurfacing since their original construction. The section of US Route 30 within the project limits was originally constructed in 1944 and has undergone periodic resurfacing and widening by IDOT with the most recent resurfacing in 1999. The BNSF Railroad was built as the Chicago, Burlington and Quincy Railroad prior to 1868, and is now part of BNSF's Northern Transcontinental route.

The bridge north of the Dauberman Road and US Route 30 intersection (SN 045-3107), over Welch Creek, was recently replaced by KDOT and reopened in July 2016. The improvement consisted of a new superstructure and repairs to the existing substructure, with 2-12 foot lanes and 8-foot wide shoulders. The structure was raised approximately three inches and modernized guardrail systems were added in accordance with IDOT Highway Standards.

### 1.3.2 Project Studies

A feasibility study was conducted by KDOT in 1999 for a Dauberman Road extension from US Route 30 to Granart Road. The study considered many alternatives including an at-grade crossing of the BNSF Railroad, below-grade crossing, and an above-grade crossing of the railroad. The conclusion of the feasibility study found two alternatives to be feasible for further evaluation and study, the at-grade crossing and the above-grade crossing of the BNSF Railroad with an elevated intersection with US Route 30. The alternatives found to be feasible will be evaluated as part of this project.

The Kane County 2040 Transportation Plan (adopted April 10, 2012) outlines five alignments in the western third of the county to provide a continuous north-south corridor and improve connectivity throughout the County and the region. The Dauberman Road extension is one of the alignments that is recommended in order to create an additional north-south connection over the BNSF Railroad and relieve any traffic congestion at the intersection of Dugan Road and US Route 30.

The Village of Big Rock Comprehensive Plan (adopted April 22, 2014) was completed in conjunction with Chicago Metropolitan Agency for Planning (CMAP), the region's Metropolitan Planning Organization (MPO), and funded in part by the Federal Highway Administration (FHWA), Federal Transit Administration (FTA), US Department of Housing and Urban Development (HUD), Illinois Department of Transportation (IDOT), and the Chicago Community Trust. The Plan supports the extension of Dauberman Road because it recognizes the extension as an additional north-south route, an additional rail crossing for emergency vehicles, and potentially vital to the Village of Big Rock's future land use plan – it has identified the area south of the BNSF as a new industrial area and the area around US Route 30 and Dauberman Road as an area for potential commercial growth<sup>1</sup>.

The Village of Sugar Grove Comprehensive Plan includes two new grade separated crossings of the BNSF railroad tracks between the Village of Big Rock and Dugan Road, with one crossing at the Dauberman Road corridor and another one mile east as part of a new north/south collector roadway. It anticipates the area south of the railroad tracks and east of an extension of Dauberman being developed as residential area.<sup>2</sup>

IDOT is conducting an Environmental Assessment (EA) Phase 1 study along US Route 30 from just east of Dauberman Road to Illinois Route 47 (IL Route 47). IDOT's west project limit will match into KDOT's east project limit along US Route 30. IDOT is considering potential improvements along the US Route 30 corridor to address future transportation needs. The project is anticipated to complete the EA in 2019, with construction to be programmed thereafter. To address current safety and capacity issues at the US Route 30 and Dugan Road intersection, IDOT advanced an interim design and construction project for the intersection. Construction of the intersection improvements was completed in late 2016.

Similarly, the Village of Sugar Grove improved the intersection of Granart Road and Dugan Road as a roundabout. This intersection is located immediately south of the US Route 30 and Dugan Road intersection. The roundabout was completed in August 2015.

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<sup>1</sup> Source: *Village of Big Rock Comprehensive Plan*, Chicago Metropolitan Agency for Planning (CMAP), Adopted April 22, 2014, Page 79.

<sup>2</sup> Source: *Village of Sugar Grove Comprehensive Plan*, URS Corporation, Adopted 2004

## 1.4 NEED FOR THE PROPOSED ACTION

### 1.4.1 Improve Safety

#### *Emergency Routes and Response*

One of the key needs this project intends to address is more effective emergency routes. The emergency responders (fire department and paramedics) are currently located south of the BNSF Railroad in the Village of Big Rock. The fire department and paramedics service the areas north of US Route 30 such as the Kaneland High School located in Maple Park on Keslinger Road between Dauberman Road and Meredith Road, approximately eight miles from the project.

In cases where emergencies are north of the BNSF Railroad, the first responders are required to detour around the train for both reaching an emergency north of the railroad and then once again to travel to the nearest hospital. The nearest hospitals used for the Village of Big Rock are in Sandwich and Yorkville in Kendall County. Maneuvers to bypass a blocked at-grade rail crossing require responders to travel five to ten miles out of their way. At times emergency responders are forced to travel to IL Route 47 in Sugar Grove, which has the nearest grade-separated crossing to respond to emergencies north of the tracks.

This area is under the jurisdiction of the Kane County Sherriff, which is based out of St. Charles. They have also noted delays in response times due to blocked at-grade railroad crossings.

Per the Illinois Commerce Commission (ICC) and train counts conducted by the project team, there are between 25 and 32 trains per day on the BNSF Railroad line through Sugar Grove and Big Rock.

#### *Railroad Crossing Safety*

As of January 4, 2016 the crossings at Dugan Road (approximately two miles east of Dauberman Road) and Rhodes Street (approximately one mile west of Dauberman Road, in downtown Big Rock) were changed to no-horn crossings. These at-grade crossings have signals, crossing gates, and medians to discourage drivers from going around the gates. The potential for further safety improvements at these crossings, such as full grade separated overpass or underpass, are constrained by existing structures and other roadways.

#### *Crash Experience/History*

From 2010 through 2014 there were 109 crashes of all types reported within the project study area. Key trends within these crashes were:

- Rear end crashes were the most common, with a concentration at the Dugan Road and US Route 30 intersection, where a significant volume of traffic crosses the BNSF tracks between Granart Road and US Route 30.
- Collisions between vehicles and large animals like deer were the second most common type of crash, with the majority of the crashes that occurred on roadway segments between intersections.
- The Granart Road curve, approximately a half-mile west of Mary Drive, was a focal point for Loss of Control crashes, with many being attributed to either weather condition or traveling at a high rate of speed through the curve.

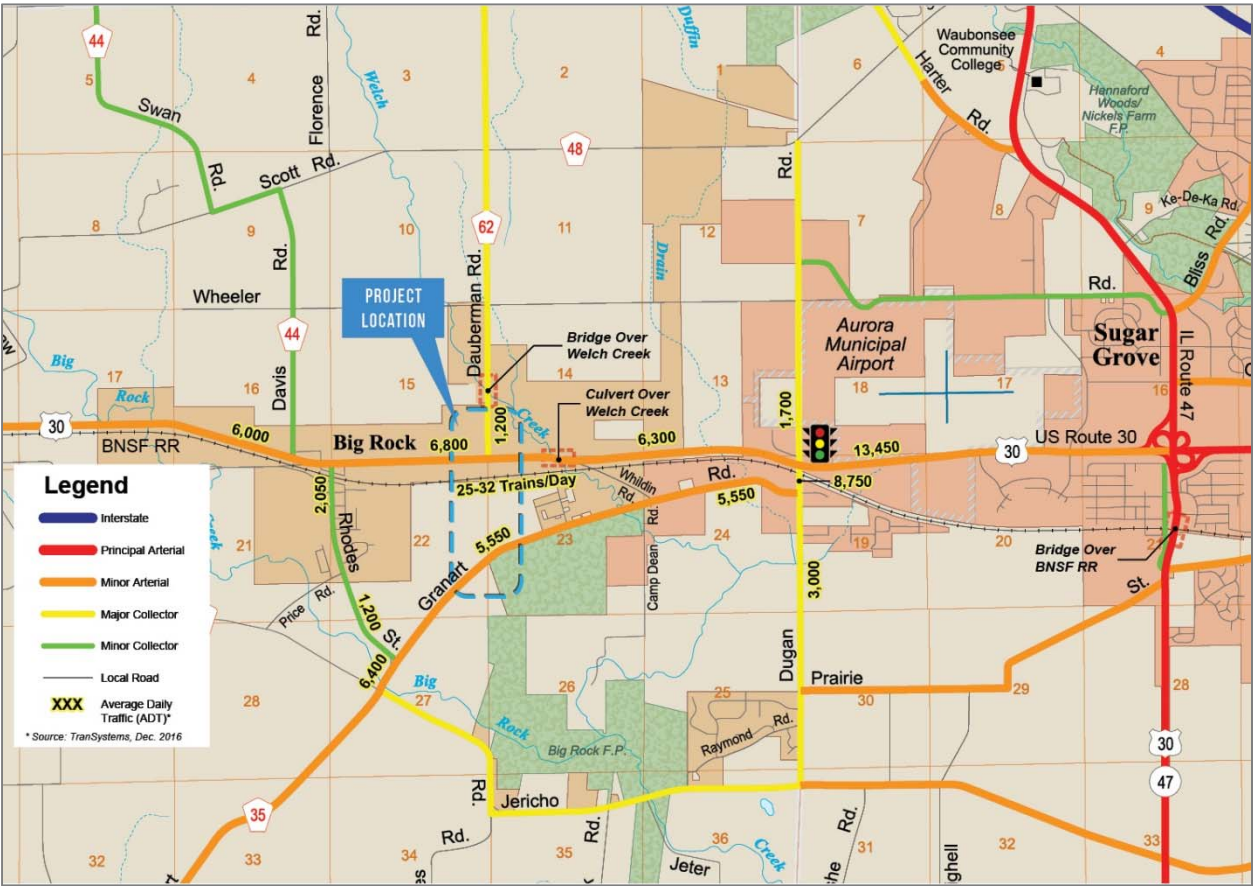
Animal collision crashes are common to many roads similar to the project, and are typically difficult to mitigate. However, rear end crashes and the loss-of-control issues at the Granart Road curve are indicative of safety needs caused by excessive queueing and geometric issues.

1.4.2 Improve Mobility

Traffic Volumes

Based on traffic counts conducted in September 2016, traffic volumes were analyzed and then forecasted by the Chicago Metropolitan Agency for Planning (CMAP) based on assumed growth within the area. Per CMAP’s model, traffic growth is anticipated to continue to increase based on population, new industrial and commercial businesses, and increased residential development. The existing average daily traffic (ADT) varies within the corridor as seen below (see **Figure 1.2 Existing Average Daily Traffic**).

**Figure 1.2: Existing Average Daily Traffic**



The anticipated ADT traffic volume increases in the 2040 build condition are commensurate with implementation of the Dauberman Road extension and creation of the new north-south connection from US Route 30 to Granart Road. The growth shows the continued northeast and southwest predominant travel patterns. Along US Route 30, the section between Dugan Road and Dauberman Road will experience a 138 percent growth. Granart Road west of the Dauberman Road extension will experience a 100.9 percent growth. In contrast, Dugan Road between US Route 30 and Granart Road will realize a 4.6 percent reduction in volumes. Granart Road between the Dauberman Road extension and Dugan Road will experience a 23.4 percent reduction in volume as well (see **Figure 1.3 Projected 2040 Average Daily Traffic**).

Figure 1.3: Projected 2040 Average Daily Traffic



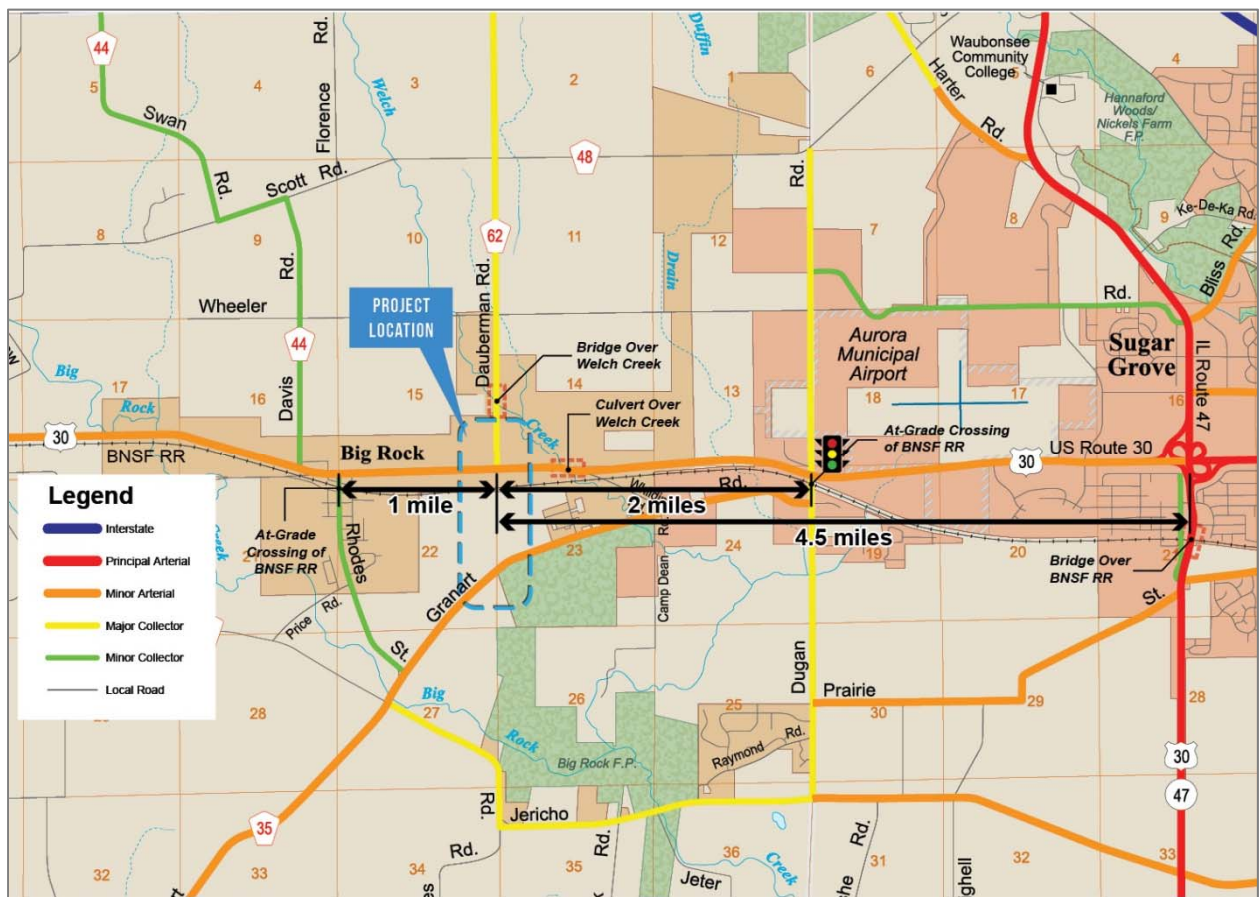
### Train Volumes and Crossings

Based on train counts conducted over a 24-hour period in December 2016, over 50% of the trains were observed to stop for two or more minutes at the Dugan Road and BNSF Railroad crossing. Based on these same counts, it was seen that over 35% of the trains are running during the morning and evening commuter peak periods.

On average, the BNSF Railroad Aurora Subdivision has 25 to 32 trains per day at the Rhodes Street crossing in the Village of Big Rock and at the Dugan Road crossing in Sugar Grove. There are no passenger services currently on the rail line; all trains are freight trains which are typically longer and slower than passenger trains and create longer blockages of road crossings.

The nearest crossings of the BNSF Railroad to Dauberman Road are Rhodes Street in downtown Big Rock one mile to the west, and Dugan Road two miles to the east, both of which are at-grade crossings. The nearest grade separated crossings are IL Route 47, 4.5 miles to the east in Sugar Grove, and US Route 30, 17.5 miles to the west near the Village of Shabbona. Because of these large gaps between grade separated crossings of the railroad, there is a need for additional crossings to increase mobility for all road users. Because of the impacts to traffic mobility from the crossing trains, there is a need for new grade separated crossings (see **Figure 1.4 Railroad Crossings Locations**).

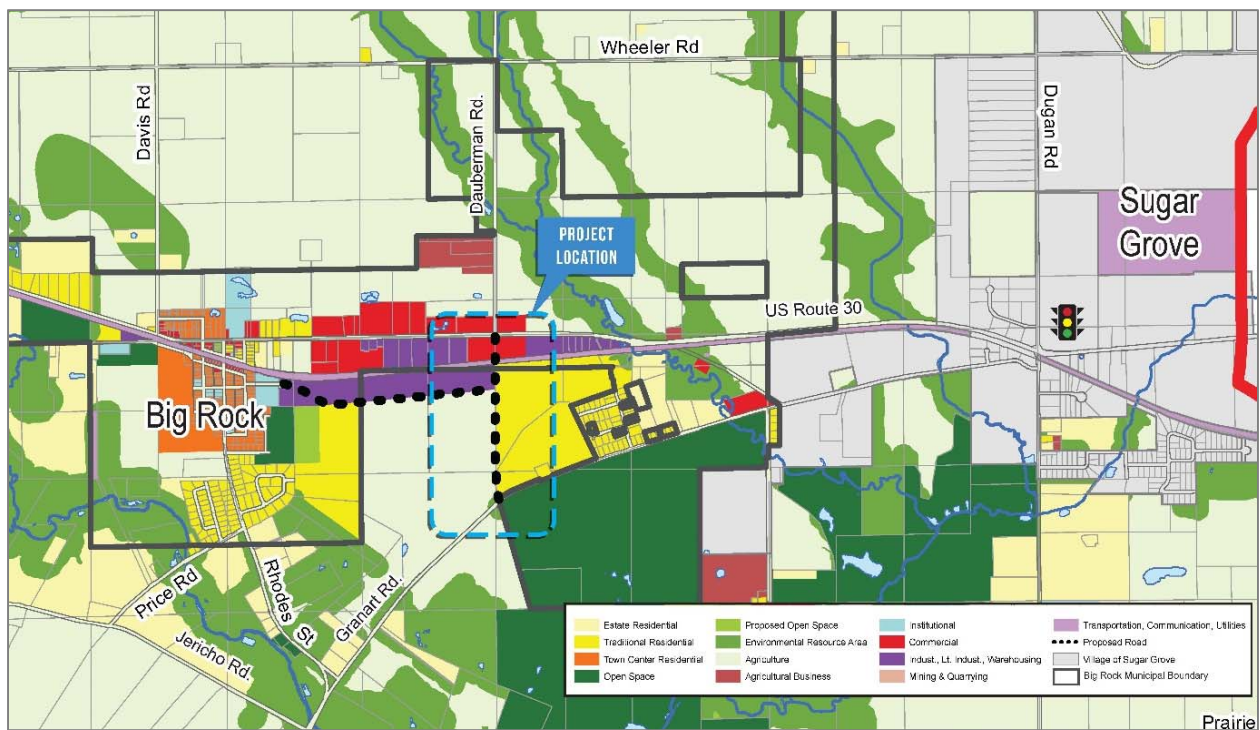
**Figure 1.4: Railroad Crossings Locations**



### Local Land Use

The Village of Big Rock Comprehensive Plan includes an additional crossing of the BNSF tracks in the Dauberman Road corridor, and also includes an extension of 2<sup>nd</sup> Street east from downtown Big Rock, terminating at the Dauberman Road corridor. These roadway extensions, in addition to any other benefit seen in the plan, provide access to additional development in the area south of the BNSF railroad tracks and east of Big Rock. The Comprehensive Plan’s land use in the project study area is a strip of industrial use along the south side of the BNSF railroad tracks, accessed primarily from the 2<sup>nd</sup> Street extension. In addition to this industrial development, a large residential development is seen directly east of the Dauberman Road corridor, with access from either a Dauberman Road extension or Granart Road (see **Figure 1.5 Village of Big Rock – Future Land Use Map**).

**Figure 1.5: Village of Big Rock – Future Land Use Map**

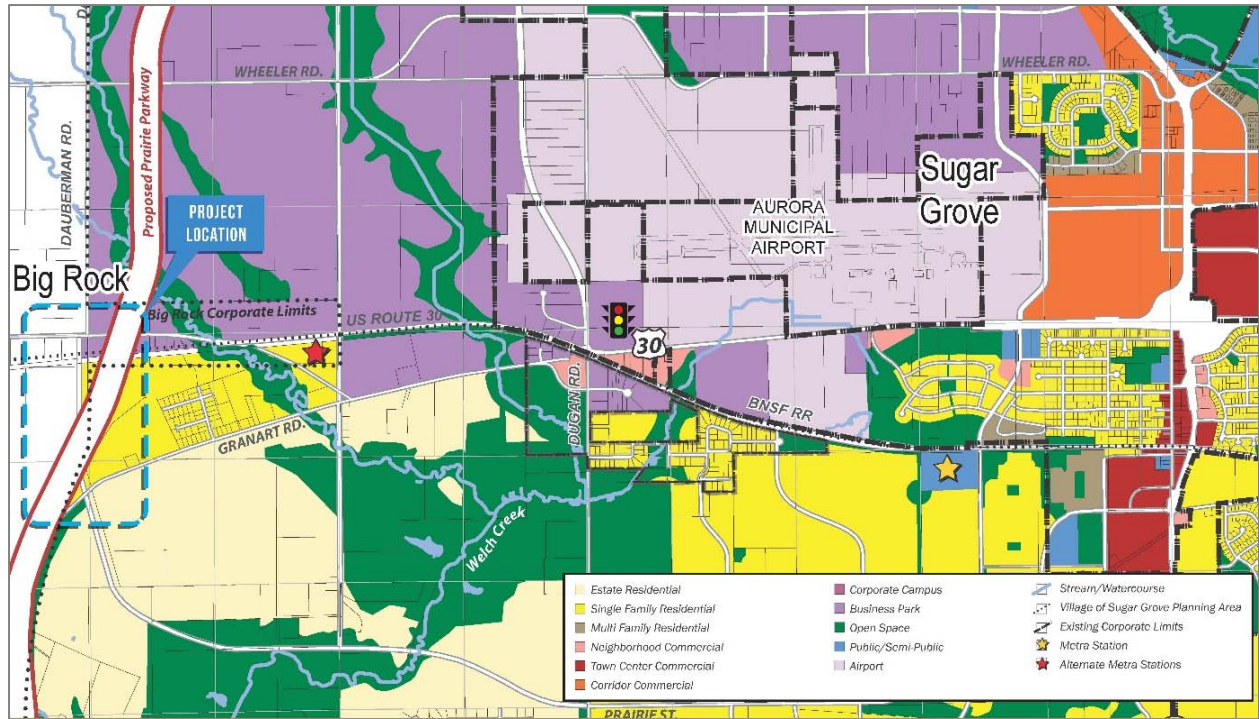


The Village of Sugar Grove’s Comprehensive Plan is similar to Big Rock’s, including both a crossing of the BNSF Railroad along the Dauberman Road corridor and a new collector roadway between Dauberman Road and Dugan Road. The future land use according to the Comprehensive Plan will include commercial and industrial development north of US Route 30 on both sides of Dugan Road to Dauberman Road. South of US Route 30 will be commercial/industrial development east of Dugan Road and residential development west to the Dauberman Road extension (see **Figure 1.6 Village of Sugar Grove – Future Land Use Map**).

Both municipalities within the project study area propose land uses that will encourage growth and continue to challenge the mobility of the area and the surrounding roadway network.



**Figure 1.6: Village of Sugar Grove – Future Land Use Map**



### 1.4.3 ENHANCE SYSTEM LINKAGE AND CONNECTIVITY

Dauberman Road is an important north-south roadway connection in Southwest Kane County. It currently extends approximately eight miles to the north of US Route 30 where it intersects with Keslinger Road in Maple Park. It provides connections to Kaneville and Maple Park from Sugar Grove and Big Rock. Additionally, Dauberman Road is one of only four roads in Kane County west of IL Route 47 that provides access across Interstate 88 (I-88).

In the existing condition, Dauberman Road tees into US Route 30 directly north of the BNSF Railroad. Motorists wishing to travel further south are required to travel either west into downtown Big Rock to Rhodes Street or east to Dugan Road to use the railroad crossings at those locations, resulting in a mile or more of adverse travel, and deflection of vehicles from a primary north/south route that provides access over I-88. Three separate long-range planning documents, the Village of Big Rock and Village of Sugar Grove Comprehensive Plans as well as the KDOT 2040 Transportation Plan, all indicate a need to construct an additional grade separated crossing of the railroad to improve north/south travel in the area east of Big Rock.

In addition to motorized traffic, non-motorized bicycle and pedestrian traffic is impacted by the scarcity of railroad crossings in the area. The West Kane Corridor Regional Trail is a non-motorized trail that is included in the Kane County Bicycle and Pedestrian Plan (see **Figure 1.7** Kane/Kendall County Bicycle and Pedestrian Plan). This trail is planned to run north/south along the Dauberman Road corridor, provide non-motorized access in western Kane County, and connect to existing trails within the Big Rock Forest Preserve<sup>3</sup>. Again because of the distance from this planned corridor to existing railroad crossings at Dugan Road and Rhodes

<sup>3</sup> Source: *Kane County Bicycle and Pedestrian Plan*, Kane County, Adopted April 2012

Street, there is a need to provide an additional crossing of the BNSF Railroad at or near the Dauberman Road corridor to enhance planned non-motorized transportation links.

**Figure 1.7: Kane/Kendall County Bicycle and Pedestrian Plan**

