3.11. Transportation and Traffic

This section describes applicable federal, state, and local regulations and policies related to transportation and circulation, and discusses the existing roadway network and transportation facilities in Solano County and adjacent areas that could be affected by implementation of the project. This section also describes existing conditions along transportation routes that would be affected by transport of equipment, tools, materials, and personnel to decommission existing facilities, and to construct, operate, and decommission the project. Finally, this section presents an evaluation of the potential impacts of project construction and operation.

3.11.1. Regulatory Setting

The California Department of Transportation (Caltrans) and Solano County (County) have regulatory authority over the transportation network in the project area. Caltrans has jurisdiction over the state highway system and the County establishes regulations for unincorporated areas of the county. An overview of the transportation and circulation standards applicable to the project is provided below.

Federal

The following federal plans, policies, regulations, and laws may be applicable to the proposed project.

- Sections 171–173 and 177 of Title 49 of the Code of Federal Regulations include general information, regulations, and definitions pertaining to the transportation of hazardous materials, types of materials defined as hazardous, shipping requirements, marking of transportation vehicles, training requirements, and carriage by public highway.

- Sections 350–399 and Appendices A–G in Title 49 of the Code of Federal Regulations address safety issues for transport of goods, materials, and substances over public highways.

- The Hazardous Materials Act of 1974, which is enforced by the U.S. Department of Transportation, governs the transportation of hazardous materials in the nation. The act’s main objective is to improve regulations and enforcement for transportation of hazardous materials in commerce.

State

Caltrans is responsible for planning, designing, constructing, operating, and maintaining all state-owned roadways in Solano County and throughout the state. Federal highway standards are implemented in California by Caltrans. Any improvements or modifications to the state highway system in Solano County need to be approved by Caltrans. In areas
that could be affected by the project, State Routes (SRs) 221, 29, 12 west and east) and 113, and Interstate 80 (I-80) are under Caltrans’s jurisdiction.

The following State of California plans, policies, regulations, and laws may be applicable to the proposed project.

- Sections 660, 670, 1450, 1460 et seq., 1470, and 1480 of the California Streets and Highways Code regulate right-of-way encroachment and granting of permits for encroachments on state and county roads.

- Sections 117 and 660–672 of the California Street and Highways Code and Sections 35780 et seq. of the California Vehicle Code (CVC) require permits for transportation of oversized loads on county roads.

- CVC Sections 13369, 15275, and 15278 address the licensing of drivers and classifications of licenses required for operating particular types of vehicles. These sections also address certificates that permit operation of vehicles transporting hazardous materials.

- CVC Section 353 defines hazardous materials, and Sections 2500–2505 authorize the Commissioner of the California Highway Patrol (CHP) to issue licenses for transportation of hazardous materials, including explosives.

- Under CVC Section 2812.5, CHP staff may prohibit commercial vehicles from using highways under limited-visibility conditions, and CVC Section 21662 includes regulations governing driving in mountainous terrain.

- CVC Division 13 regulates towing and loading equipment and vehicles.

- CVC Division 14.8 includes safety regulations for operation of commercial vehicles and certain large vehicles.

- CVC Division 15 (Size, Weight, and Load), Chapter 5, Article 6 defines oversized loads. Caltrans approval is required for transportation of oversized or excessive loads over state highways; this includes limitations for various types, depending on axles and wheelbase length.


- Caltrans is responsible for the planning, design, construction, operation, and maintenance of all state-owned roadways. SRs 221, 29, 12, and 113, and I-80 could be affected by the project, and are within Caltrans’s jurisdiction.
Senate Bill 743

Senate Bill 743 (Chapter 386, Statutes of 2013) requires the Governor’s Office of Planning and Research to develop new CEQA guidelines addressing the traffic metrics to be used in CEQA analyses. As stated in the legislation, upon adoption of the new guidelines, “automobile delay, as described solely by level of service or similar measures of vehicular capacity or traffic congestion shall not be considered a significant impact on the environment pursuant to this division, except in locations specifically identified in the guidelines, if any.” On December 28, 2018, the California Natural Resources Agency adopted revisions to the State CEQA Guidelines to implement Senate Bill 743. In compliance with the revised guidelines, this EIR does not assess changes in vehicle delay, including levels of service, on roadways that could be affected by project implementation.

Regional

Solano County Comprehensive Transportation Plan, Arterials, Highways and Freeways Element

The Solano Transportation Authority is responsible for preparing and updating the Solano County Comprehensive Transportation Plan Arterials, Highways and Freeways Element. The Arterials, Highways and Freeways Element identifies priorities for Solano County that will be recommended for inclusion in the regional transportation plan/sustainable communities strategy prepared by the Metropolitan Transportation Commission (STA 2018).

The roadways included in the Solano County Comprehensive Transportation Plan Arterials, Highways and Freeways Element are identified as:

- roadways providing access to and from transit facilities of regional significance,
- roadways providing access to and from major employment centers,
- roads providing intercity and freeway/highway connections, and
- other roads critical to providing countywide emergency response.

As defined by the Solano Transportation Authority, the following facilities that serve the Solano 4 Wind Project area or that could be used in the transport of major project components are included in the Solano County Comprehensive Transportation Plan Arterials, Highways and Freeways Element roadway network:

- **Interstate 80**: Six- to 10-lane divided interstate freeway. Solano County’s main freeway corridor. Average annual daily traffic is 116,000 (Solano/Contra Costa County line) to 132,000 (Solano/Yolo County line). Trucks average 5.8 percent of average annual daily traffic. Designated freight corridor.
• **SR 12 (west):** Four-lane divided state highway connecting Solano and Napa counties. Newly improved.

• **SR 12 (east):** Two- and four-lane state highway connecting Fairfield, Suisun City, and Rio Vista. Significant truck traffic related to wine, agriculture, and Travis Air Force Base.

• **SR 113:** Two- and four-lane state highway through central Solano County, and two-lane arterial through Dixon.

**Solano Transportation Authority Bicycle Master Plan and Pedestrian and Trails Master Plan**

In 2011 and 2012, the Solano Transportation Authority prepared and adopted a regional bicycle master plan and pedestrian and trails master plan (STA 2011, 2012). The plans promote the continued development of regional pedestrian and bikeway systems and nonmotorized transportation route planning, in conjunction with planning for streets, roads, highways, and public transit.

**Local**

**Solano County General Plan**

The Circulation Element of the *Solano County General Plan* (Solano County 2008) provides goals, policies, and implementation measures to provide greater mobility through a balanced transportation system. The following policies apply to the project:

• **Policy TC.P-4:** Evaluate proposals for new development for their compatibility with and potential effects on transportation systems.

• **Policy TC.P-5:** Fairly attribute to each development the cost of on- and off-site improvements needed for state and county roads and other transportation systems to accommodate that development, including the potential use of development impact fees to generate revenue.

• **Policy TC.P-11:** Maintain and improve the current roadways and highway system to meet recommended design standards set forth by the County, including streets that also carry transit and nonmotorized traffic.

**3.11.2. Environmental Setting**

**Circulation System**

The regional circulation system near the project area consists of I-80 and Interstate 680 (I-680), which connect Fairfield to other cities in the San Francisco Bay Area. These are multi-lane freeways. From I-80, SR 12 provides access to the project area. SR 12 continues east of the project area and connects to SR 113, which provides access to
Davis and Woodland to the north and turns into Birds Landing Road to the south. Other state highways in the area include SR 4 and SR 160.

The local circulation system near the project site generally consists of Birds Landing Road, Montezuma Hills Road, and Toland Lane, as well as Shiloh Road, Collinsville Road, and Talbert Lane, all of which could serve as access roads. Exhibit 3.11-1 shows and Table 3.11-1 describes the roadways that serve the project site or that could be used to transport wind turbine generator (WTG) components.

The construction workforce and delivery vehicles would travel to the site via the regional and local circulation system as described. Specifically, I-80 would provide freeway access to the project area from San Francisco and Sacramento, while access from Contra Costa County to the project area would be provided via I-680 to I-80 or via SR 12 and SR 113 from the east and SR 4 and SR 160 from the south. SR 12 would provide primary access to the project area from this highway network.

**Existing and Proposed Transit Services, and Bicycle and Pedestrian Facilities**

No developed pedestrian facilities are existing or planned in the project area (STA 2012; Solano County 2008).

There are no existing bicycle facilities in or adjacent to the project area. The Solano Countywide Bicycle Transportation Plan (STA 2011) proposes a 20-mile Class II bicycle lane or Class III bicycle route on SR 12 from Rio Vista to Walters Road. Class III facilities are planned for SR 113 from Dixon to the SR 12 intersection near the project site. Class III facilities are planned for Montezuma Hills Road, Birds Landing Road, Collinsville Road, and Shiloh Road within the Montezuma Hills in the project vicinity.

Bikeways are classified into one of three different classes of bicycle travel routes, identified as Class I, Class II, and Class III, based on the following descriptions:

- **Off-Street Bike Paths (Class I Bikeways):** These facilities are off-street bike paths in a right-of-way designated for exclusive use by cyclists and pedestrians.

- **On-Street Bike Lanes (Class II Bikeways):** These facilities are street lanes identified with lane markings and signage for preferential use by cyclists.

- **On-Street Bike Routes (Class III Bikeways):** These facilities are on-street bike routes designated by signs or permanent markings and are shared by motorists. Generally, these routes are through streets that provide connectivity for the bicycle network where Class I or Class II bikeways are not present.

The City of Rio Vista operates a weekday deviated, fixed-route bus service from Rio Vista to Suisun City/Fairfield using SR 12. Deviations within 1 mile of the fixed bus route are available by reservation (City of Rio Vista 2019). No other transit services are available or planned in the project vicinity.
Exhibit 3.11-1 Roadways in the Project Vicinity
Table 3.11-1 Public Roadways Potentially Serving the Project Area

<table>
<thead>
<tr>
<th>Facility Name</th>
<th>Jurisdiction</th>
<th>Functional Classification</th>
<th>Description</th>
<th>Source(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Napa Pipe Railroad Terminal to the Vicinity of the Solano 4 Wind Project</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kaiser Road</td>
<td>City of Napa</td>
<td>Collector</td>
<td>Collectors serve as connectors between local and arterial streets and provide direct access to parcels. Collector street standards are normally used for access streets in industrial and office parks.</td>
<td>1</td>
</tr>
<tr>
<td>SR 221</td>
<td>Caltrans</td>
<td>Rural Minor Arterial</td>
<td>Rural minor arterials link cities and larger towns and form an integrated network providing interstate and intercounty service.</td>
<td>5, 6, 7</td>
</tr>
<tr>
<td>Napa County</td>
<td></td>
<td>Rural Throughway</td>
<td>Rural throughways are roadways with two to six through lanes that are designed primarily for longer distance travel between major centers of activity and built to accommodate this type of travel.</td>
<td></td>
</tr>
<tr>
<td>SR 29</td>
<td>Caltrans</td>
<td>Other Principal Arterial—Freeway and Expressway</td>
<td>Other principal arterials provide mobility through rural areas. Forms of access for other principal arterial roadways include driveways to specific parcels and at-grade intersections with other roadways.</td>
<td>4, 6, 7</td>
</tr>
<tr>
<td>Napa County</td>
<td></td>
<td>Rural Throughway</td>
<td>Rural throughways are roadways with two to six through lanes that are designed primarily for longer distance travel between major centers of activity and built to accommodate this type of travel.</td>
<td></td>
</tr>
<tr>
<td>SR 12 (west)</td>
<td>Caltrans</td>
<td>Other Principal Arterial—Freeway and Expressway</td>
<td>Other principal arterials provide mobility through rural areas. Forms of access for other principal arterial roadways include driveways to specific parcels and at-grade intersections with other roadways.</td>
<td>3, 6, 7, 8</td>
</tr>
<tr>
<td>Napa County</td>
<td></td>
<td>Rural Throughway (Napa County)</td>
<td>Rural throughways are roadways with two to six through lanes that are designed primarily for longer distance travel between major centers of activity and built to accommodate this type of travel.</td>
<td></td>
</tr>
<tr>
<td>Major Arterial (Solano County)</td>
<td></td>
<td>Major Arterial</td>
<td>Major arterial roads, often with multiple lanes, provide the highest level of connectivity with local land uses. These facilities are usually controlled by signal operations with multiple phases.</td>
<td></td>
</tr>
<tr>
<td>I-80</td>
<td>Caltrans</td>
<td>Interstate Freeway</td>
<td>Interstates are the highest classification of arterials and were designed and constructed with mobility and long-distance travel in mind.</td>
<td>2, 6, 8</td>
</tr>
<tr>
<td>Freeway (Solano County)</td>
<td></td>
<td>Freeways provide interregional connectivity and are designed for limited-access operation without any signalized controls. All roadway access is limited to ramps.</td>
<td>2, 6, 8</td>
<td></td>
</tr>
<tr>
<td>SR 12 (east)</td>
<td>Caltrans</td>
<td>Other Principal Arterial—Freeway and Expressway</td>
<td>Other principal arterials provide mobility through rural areas. Forms of access for other principal arterial roadways include driveways to specific parcels and at-grade intersections with other roadways.</td>
<td>3, 6, 8</td>
</tr>
</tbody>
</table>
## Table 3.11-1 Public Roadways Potentially Serving the Project Area

<table>
<thead>
<tr>
<th>Facility Name</th>
<th>Jurisdiction</th>
<th>Functional Classification</th>
<th>Description</th>
<th>Source(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wind Turbine Generator Delivery to the Solano 4 West Project Subarea</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shiloh Road</td>
<td>Solano County</td>
<td>Collector</td>
<td>Collector roads link local and collector roads with arterials, freeways, and other collector roads. They usually have moderate but not congested volume.</td>
<td>8</td>
</tr>
<tr>
<td>Collinsville Road</td>
<td>Solano County</td>
<td>Collector</td>
<td>See collector road description presented for Shiloh Road, above.</td>
<td>8</td>
</tr>
<tr>
<td>Talbert Lane</td>
<td>Solano County</td>
<td>Local Road</td>
<td>Local roads are used primarily for access to residences, businesses, or other abutting properties. Ideally, these are paved roads with enough width to allow vehicles to operate in both directions.</td>
<td>8</td>
</tr>
<tr>
<td>Stratton Road</td>
<td>Solano County</td>
<td>Local Road</td>
<td>See local road description presented for Talbert Lane, above.</td>
<td>8</td>
</tr>
<tr>
<td>Wind Turbine Generator Delivery to the Solano 4 East Project Subarea</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Birds Landing Road (SR 12 to Private Road)</td>
<td>Solano County</td>
<td>Collector</td>
<td>Collector roads link local and collector roads with arterials, freeways, and other collector roads. They usually have moderate but not congested volume.</td>
<td>8</td>
</tr>
<tr>
<td>Montezuma Hills Road (Private Road to Solano 4 East)</td>
<td>Solano County</td>
<td>Collector</td>
<td>See collector road description presented for Birds Landing Road, above.</td>
<td>8</td>
</tr>
</tbody>
</table>

Notes: Caltrans = California Department of Transportation; Solano 4 Wind Project = Solano Wind Energy Project, Phase 4; SR = State Route
Sources:
1. City of Napa 2012: Table 3-2
2. Caltrans 2017a
3. Caltrans 2017b
4. Caltrans 1985a
5. Caltrans 1985b
6. FHWA 2019
8. Solano County 2008:Roadway Classifications
3.11.3. Environmental Impacts and Mitigation Measures

Proposed Project

Transporting WTG components, other construction elements, and construction personnel, would require several modes of transportation and multiple routes, including rail and roadways. No construction transportation plan has been prepared; however, based on past SMUD practice, wind turbine towers, blades, nacelles, and rotors likely would be transported via rail to the former site of Napa Pipe in unincorporated Napa County. Rail transport would be via the Union Pacific Railroad to Suisun City, and then via the California Northern Railroad to the Napa Pipe yard. (See Exhibit 3.11-2.) At this location, WTG tower components and blades would be offloaded for marshalling and transport by truck to the project site.

From the Napa Pipe staging area, larger components would be transported overland to the project site on heavy trucks, which would use a series of city streets, state routes, and rural roadways (Table 3.11-2). Truck trailers may be larger than average to carry oversized loads. If required, pilot vehicles would accompany the trucks. Equipment would be hauled directly to the worksite and assembled or installed. Transport of heavy components may require temporary relocation of obstacles such as fences and overhead power lines, and/or placement of temporary mats and fill material to support the loaded vehicle weights.

For each turbine, up to 18 separate loads of equipment and materials would be delivered to the pad. Nine to 12 of these loads would be oversized permitted loads (Exhibit 3.11-3). Towers generally would be delivered and constructed in three, four, or five sections, depending on the turbine selected. Each turbine blade, nacelle, and rotor and set of down-tower components (e.g., controllers, ladders and platforms, and turbine switchgear) would be delivered separately.

All transportation activities would be timed to minimize traffic disruptions consistent with applicable permits administered by the City of Napa, Caltrans, and Solano County. Delivery of project components would be coordinated through the encroachment permit processes implemented by the City, Caltrans, and County. These processes would be used to determine the final trailer configuration, clearance requirements, emergency service access, lane closures (if required), CHP escort (as required), and transportation times.
Exhibit 3.11-2 Proposed Transportation Routes
<table>
<thead>
<tr>
<th>Facility Name</th>
<th>Jurisdiction</th>
<th>Segment Description</th>
<th>Length (miles)</th>
<th>Truck Route or Roadway Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kaiser Road</td>
<td>City of Napa</td>
<td>Nominal two lanes/38- to 80-foot paved section</td>
<td>0.5</td>
<td>Collector</td>
</tr>
<tr>
<td>SR 221</td>
<td>Caltrans</td>
<td>Two-lane highway/two 12-foot through lanes/42-foot paved section in each direction</td>
<td>1.1</td>
<td>Terminal Access (STAA)</td>
</tr>
<tr>
<td>SR 29</td>
<td>Caltrans</td>
<td>Four-lane highway/two 12-foot through lanes/42-foot paved section in each direction</td>
<td>1.5</td>
<td>Terminal Access (STAA)</td>
</tr>
<tr>
<td>SR 12 (west)</td>
<td>Caltrans</td>
<td>Four-lane highway/two 12-foot through lanes/42-foot paved section in each direction, transitioning to a single lane (eastbound) near Red Top Road/median concrete barricade</td>
<td>6.3</td>
<td>Terminal Access (STAA)</td>
</tr>
<tr>
<td>I-80</td>
<td>Caltrans</td>
<td>Multi-lane controlled-access freeway/six 12-foot through lanes/80-foot paved section eastbound/median concrete barricade</td>
<td>2.5</td>
<td>National Network Route (STAA)</td>
</tr>
<tr>
<td>SR 12 (east)</td>
<td>Caltrans</td>
<td>Four-lane highway/two 12-foot through lanes/38-foot paved section in each direction</td>
<td>6.7</td>
<td>Terminal Access (STAA)</td>
</tr>
<tr>
<td>SR 12 (east)</td>
<td>Caltrans</td>
<td>Two-lane highway/one 10-foot through lane each direction/38-foot paved section/median concrete barricade</td>
<td>6.0</td>
<td>Terminal Access (STAA)</td>
</tr>
<tr>
<td>SR 12 (east)</td>
<td>Caltrans</td>
<td>Two-lane highway/one 10-foot through lane each direction/38-foot paved section</td>
<td>5.6</td>
<td>Terminal Access (STAA)</td>
</tr>
</tbody>
</table>

**Wind Turbine Generator Delivery to the Solano 4 West Project Subarea**

<table>
<thead>
<tr>
<th>Facility Name</th>
<th>Jurisdiction</th>
<th>Segment Description</th>
<th>Length (miles)</th>
<th>Truck Route or Roadway Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shiloh Road</td>
<td>Solano County</td>
<td>Two-lane roadway/two 10-foot lanes/20-foot paved width</td>
<td>6.3</td>
<td>Collector</td>
</tr>
<tr>
<td>Collinsville Road</td>
<td>Solano County</td>
<td>Two-lane roadway/two ~10-foot lanes/18- to 20-foot paved width</td>
<td>4.5</td>
<td>Collector</td>
</tr>
<tr>
<td>Talbert Lane</td>
<td>Solano County</td>
<td>Paved roadway transitioning to gravel/15–17 feet in width</td>
<td>1.9</td>
<td>Local Road</td>
</tr>
<tr>
<td>Stratton Road</td>
<td>Solano County</td>
<td>Gravel roadway/17 feet in width</td>
<td>1.0</td>
<td>Local Road</td>
</tr>
</tbody>
</table>

**Wind Turbine Generator Delivery to the Solano 4 East Project Subarea**

<table>
<thead>
<tr>
<th>Facility Name</th>
<th>Jurisdiction</th>
<th>Segment Description</th>
<th>Length (miles)</th>
<th>Truck Route or Roadway Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birds Landing Road (SR 12 to Private Road)</td>
<td>Solano County</td>
<td>Two-lane roadway/two 12-foot lanes/24-foot paved width</td>
<td>2.6</td>
<td>Collector</td>
</tr>
<tr>
<td>Montezuma Hills Road (Private Road to Solano 4 East)</td>
<td>Solano County</td>
<td>Two-lane roadway/two 10-foot lanes/20-foot paved width</td>
<td>2.5</td>
<td>Collector</td>
</tr>
</tbody>
</table>

Notes: I-80 = Interstate 80; Solano 4 Wind Project = Solano Wind Energy Project, Phase 4; SR = State Route; STAA = Surface Transportation Assistance Act of 1982
Sources: Napa County 2008:Figure CIR-1; Solano County 2008:Figure TC-1; Caltrans 2018a, 2018b
Internal Project Site Access Roads

Access to project components would rely on existing roads when feasible. The first step in construction of new access roads or improvement of existing roads would be vegetation clearing as required, rough grading, and leveling. Base rock would be trucked in, spread, and compacted to create a road base 16 to 30 feet wide. Capping rock would then be spread over the road base and roll-compacted to finished grade. The grading equipment would make a final pass on permanent maintenance roads to level the road surfaces, and more capping rock would be spread and compacted where needed.

Some segments of currently paved roads (e.g., Talbert Lane or Stratton Road) may require realignment or widening. Realigned or widened segments would be improved with gravel during construction. Paved portions would be repaved upon completion of construction activities. Within the site boundaries, new and rehabilitated roads would be reduced in width from 30 feet to 16 feet at the end of the construction period.

Construction Traffic

Over the entire construction period, approximately 8,025 heavy truck trips would be needed for delivery of the turbine parts and related material to the project site. Of these, 360 trips would involve oversize loads. These trucks could weigh up to 110 tons and could be up to 280 feet long. Because of the large size and low maneuverability of the vehicles, brief temporary road closures may be required while larger parts are being transported.

Dump trucks, concrete trucks, water trucks, cranes, and other construction and trade vehicles would also travel to the site. Construction worker trips would generate a total of 7,500 trips over the construction period. In total, the project would generate 15,525 trips over the course of construction, with a peak construction traffic volume of approximately 250 trips per day. After construction has been completed, operation and maintenance activities for the project would require approximately six round trips per day, using pickups or other light-duty trucks.

Although the large trucks carrying turbine parts would be required to travel via specific routes (as described above), other construction traffic would travel to the project site via the most efficient paths. In general, construction traffic would travel to the generation area using SRs 12 and 113. Local access to the project site would be via Shiloh Road, Collinsville Road, Birds Landing Road, and Montezuma Hills Road.

Methods and Assumptions

Decommissioning of Existing Facilities and New Construction Traffic

Trip generation during project construction was estimated based on the average number of construction workers and material delivery and haul trips that would access the project site during construction. Except for oversize loads that would use the projected route described in Table 3.11-2 and Exhibit 3.11-2, it was assumed that the construction workforce and delivery vehicles would travel to the site via the regional and local
circulation system as described above. Specifically, I-80 would provide freeway access to the project area from San Francisco and Sacramento, while access from Contra Costa County to the project area would be provided via I-680 to I-80 or via SR 12 and SR 113 from the east and SR 4 and SR 160 from the south. SR 12 would provide primary access to the project area from this highway network.

The construction workforce is expected to arrive at the project site between about 6 a.m. and 7 a.m. and to leave the site between about 4 p.m. and 5 p.m., Monday through Friday. Some nighttime and weekend work may also be required to maintain the project construction schedule, complete critical activities, and accommodate deliveries. Deliveries would generally occur outside of the peak morning and afternoon traffic hours, with materials delivered to the designated receiving area and then distributed within the site as needed.

**Project Decommissioning**

Based on current decommissioning practices, as a reasonable worst-case scenario, it is assumed that trip generation, distribution, and assignment during future decommissioning activities would be similar to those during project construction. However, the project would be decommissioned at the end of the project’s useful life (anticipated to be 30–35 years or more).

**Thresholds of Significance**

Based on Appendix G of the State CEQA Guidelines, the project would result in a potentially significant effect related to transportation and traffic if it would:

- conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities;

- conflict with or be inconsistent with State CEQA Guidelines Section 15064.3(b) regarding vehicle miles traveled;

- substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment); or

- result in inadequate emergency access.

**Issues not Discussed Further**

The “Impact Analysis” section will not further analyze the proposed project against thresholds of significance for which no significant impacts have been identified. Therefore, the following issues will not be discussed further in the impact analysis.
Consistency with policies affecting the circulation system

No pedestrian or bicycle routes currently exist in or adjacent to the project area, and no pedestrian facilities are planned for the area. No transit facilities exist or are planned for the project area. Future Class III bikeways are planned by the Solano Transportation Authority and the County for Shiloh Road, portions of Collinsville Road, Birds Landing Road, and Montezuma Road in the project vicinity. No aspect of the proposed project would interfere with the establishment of future bikeways along these roadways. Thus, during operation, the proposed project would not conflict with an applicable plan, ordinance, or policy addressing the circulation system.

Short-term (i.e., construction-related) increases to traffic volumes along SR 12 and local roadways during construction would not affect existing or planned transit, bicycle, or pedestrian facilities by altering or placing incompatible uses within the public right-of-way.

During both construction and operation, the project would be consistent with policies affecting the circulation system. Therefore, this issue will not be discussed further.

Vehicle Miles Traveled

The project is expected to generate only a limited number of operational trips per day (three two-way trips on average). Because of this small number of trips during project operations, the project would not result in a significant increase in vehicle miles traveled. Therefore, this issue will not be discussed further.

Traffic Hazards/Emergency Access

Except for minor improvements to Talbert Lane and Stratton Road, and their intersections with collector roadways to allow passage of construction traffic, no public roadways would be modified, nor would any new safety hazards would be created. Existing emergency access would be maintained during project operation. During operation, the project would not result in the redesign or alteration of any public roadways, nor would emergency access be hindered. Therefore, this issue will not be discussed further.

Impact Analysis

Impact 3.11-1: Short-term construction transport-related traffic hazards and incompatible uses.

Construction-related transport of WTG components could result in hazardous conditions on state routes and local roadways because of the transport vehicle’s weight, length, width, height, and speed. This impact would be potentially significant.

Transporter Impacts on Public Roadway Hazards

A wind turbine consists of several components: the tower base, mid-section, and top section; three turbine blades; and the turbine nacelle. The size of these components
would require the use of special transport vehicles that would exceed allowable limits when loaded and traveling on California roadways. Specifically, a transporter under load would exceed the maximum allowable width, height, length, and/or weight for California highways, as defined in CVC Division 15, Size, Weight, and Load. Division 15 includes provisions for obtaining a discretionary permit to transport such loads (also known as a transportation permit) from Caltrans and/or local agencies, for the use of roadways under their respective jurisdictions. The application for such a transportation permit must describe the vehicle, the load, the route to be traversed, whether the permit is for a single trip or continuous operation, the transport date(s), and various other details.

**Weight Limits**

Vehicle weight limits are specified in the California Vehicle Code, and a summary of these complex regulations is outside the scope of this analysis. A transportation permit must be obtained for any vehicle that weighs more than regulatory limits. The permit must specify the number of tires per truck axle, distance between axles, and axle widths. This information is used to determine the maximum allowable weight per axle for the vehicle. The maximum allowable weight per axle is used for comparison to bridge weight restrictions and for determining “equivalent axle loads” used in road structure evaluations.

Caltrans inspects both state and county bridges and overcrossings and identifies the weight-bearing capacity of each. The County Road Design Standards include information on the design of county roads relative to traffic loads, although no specific standards are identified relative to single traffic trips.

The maximum allowable weight per axle for a heavy vehicle is assigned to either an orange, green, or purple load category. These categories correspond to similar bridge and overcrossing ratings. Bridges are designed to carry a certain maximum allowable weight, and bridge ratings may change over time. Heavier loads have fewer route options because some bridges are not designed to accommodate extremely heavy loads. The transporter would be required to obtain a transportation permit from state and local agencies, so that, among other safety concerns, the proposed load would not exceed any bridge or overcrossing weight limits along the intended route.

The maximum axle load weight for a loaded turbine transporter is estimated to be 18,000 pounds. This is greater than the legal standard of 10,000 pounds. If the turbine transporter were to cross any bridges between the Napa Pipe laydown yard and the project area, traffic safety could be affected if the vehicle were to exceed load limits and cause a bridge or overcrossing to fail. This impact would be **potentially significant**.

**Width Limits**

The maximum allowable width of a vehicle in California is 8.5 feet (with some exceptions noted in the California Vehicle Code), although most vehicles are closer to 6 feet wide. A transportation permit must be obtained from state and local agencies for most vehicles that exceed the maximum width and all vehicles greater than 10 feet wide, so that, among
other safety concerns, proposed loads would not obstruct the flow of opposing traffic, travel outside their lane widths, or encroach into areas outside the travel ways.

For extra-wide loads, the vehicle width must be noted on the transportation permit, along with the specified transport route. Using this information, local agents can determine which roads are adequate. It is common to permit extra-wide loads to use the majority of the roadway, even if oncoming travel is obstructed. Such travel can be accomplished safely by requiring a variety of temporary traffic control measures, such as being escorted by pilot cars or the CHP; providing advance notice to the traveling public that the travel route may be subject to delay during the transport passage; or delineating a detour route.

The maximum width of a loaded turbine transporter is estimated to be 13 feet. This is greater than the legal standard of 10 feet. A vehicle that is 13 feet wide will extend beyond the limits of a standard 12-foot travel lane and all narrower travel lanes. Therefore, transporters would occupy both travel lanes in one direction along four-lane roadways, which would affect traffic that is traveling in the same direction but not in the opposing direction. Kaiser Road, portions of SR 12 west and east, and local county roadways are two-lane facilities, and the transporters would affect traffic flows in both travel directions simultaneously. Travelers may attempt to pass the large transporter on the two-lane roadways, risking the possibility of encountering an oncoming vehicle. Traffic safety could be jeopardized. This impact would be potentially significant.

**Length Limits**

California has two types of truck networks based on truck length, the STAA Network and the California Legal Truck Network. A transportation permit must be obtained for vehicles that exceed regulation length limits. The permit must specify semi-tractor and semi-trailer lengths, axle length, and total length, to name several dimensions.

Vehicular length limits have been established mainly because of a vehicle characteristic called off-tracking. Off-tracking is the tendency of rear tires to follow a shorter path than front tires when turning. Off-tracking is a concern primarily with longer vehicles because rear tires may clip street signs, drive onto unpaved shoulders, walkways, or bike lanes, or cross the centerline on a curve, creating a safety hazard for adjacent and oncoming traffic.

To be conservative and consistent with the assumed design vehicle dimensions, the maximum length of a loaded turbine transporter is estimated to be 280 feet. This is greater than the legal standard of 65 feet. To reduce the turning radius of such long vehicles, the transporters would include rear steering dollies, although off-tracking is expected to occur at most intersections and on many curvilinear road segments. Off-tracking could result in a collision with a fixed object (such as a signpost or a curb) or the transporter would travel outside the roadway, or both. This could pose a safety risk to the transporter driver and to any person or property in the vicinity of the off-tracking vehicle. Because of the safety hazards and potential property damage associated with the turbine transporter’s turning maneuvers along the potential route, this impact would be potentially significant.
**Height Limits**

Vehicle heights are restricted to a maximum of 14 feet (with exceptions noted in the California Vehicle Code), although the CVC stipulates that a vehicle height of 13.5 feet shall be exceeded (by 6 inches) only where deemed safe by the vehicle owner and the operator. These limits have been established for various reasons; a lower vehicle center of gravity contributes to the stability of a moving vehicle, and overcrossing roads, utilities, and tree branches are suspended above many roadways and may obstruct the safe passage of vehicles. Roads that cross state facilities are posted with a clearance height facing the undercrossing travel lanes, if the undercrossing clearance is less than 16 feet.

The maximum allowable vehicle height is 14 feet, and the tallest turbine load could reach nearly 15 feet. The transporter would have a higher center of gravity, which could create unstable movements. In addition, overcrossing roads, utilities, and tree branches are suspended above many roadways. These resources could be damaged if they hang lower than the top of any of the transporters. This impact would be potentially significant.

**Transporter Impacts on Traffic Flows**

The size of the various turbine components may require the transporters to move at a rate or in such a manner that normal traffic flow is impeded, including traffic traveling in the same and opposing directions as the transporters.

**City of Napa roadway segment.** The segment of Kaiser Road that could be used by the project ranges in width from 38 feet to 80 feet. Traffic volumes on this roadway are expected to be low. Because of the width of the roadway and the lack of traffic, transporter traffic on this roadway would not adversely affect traffic flow or emergency access. This impact would be less than significant.

**SR 221/SR 29/SR 12 west/I-80/SR 12 east traffic volumes.** The transporters would travel at 40–50 miles per hour (mph) when loaded, and at 55–60 mph when empty. The speed limits on the majority of these state routes are 65 mph for all vehicles except trucks with trailers, which are limited to 55 mph. For four-lane or greater facilities (SR 221/SR 12/the majority of SR 12 west/I-80/a portion of SR 12 east), the transporters would be expected to travel in the rightmost slow lane plus the shoulder, enabling most vehicles to pass in the remaining fast lanes. Because other vehicles would be able to pass the transporters safely, the impact on the freeway traffic flow would be minor. However, should the transporters not be permitted to use the shoulder and occupy both travel lanes, this impact on state route traffic flows would be potentially significant.

**SR 12 west single lane, eastbound segment/SR 12 east segment from Walters Road to Birds Landing Road.** The transporters are expected to travel much slower on SR 12 west in the single-lane segment from west of Red Top Road to I-80. In this section, the width of the single lane is 18 feet, including the shoulder, and westbound traffic is separated from eastbound traffic by a concrete median barrier. Eastbound traffic could be delayed when the transporter travels through this section. SR 12 east is a two-lane facility from
Walters Road to Birds Landing Road in the project area. Travel lanes in this section are 10 feet in width plus a shoulder. The opposing traffic lanes in this section are separated by a concrete median barrier. Because of the likelihood that eastbound traffic could be delayed and emergency access impeded on these state routes, this impact would be potentially significant.

**Solano County Roads.** The transporters are expected to travel much slower on local roads, with an estimated travel speed of 10 mph when loaded. These roads include Shiloh Road, Collinsville Road, Talbert Lane, Stratton Road, Birds Landing Road, and Montezuma Hills Road. With the exceptions of Talbert Lane and Stratton Road, these facilities are two-lane roadways. Lane widths for these roads are generally 10 feet. Talbert Lane and Stratton Road are nominally single-lane roadways with widths from 15 to 17 feet. Although these roadways have generally low levels of traffic, transporters would use both lanes or the entire roadway in some cases, thereby substantially interfering with travel and emergency access. This impact would be potentially significant.

**Overall Impact Conclusion**

The transport of WTG components would result in adverse effects on travel and emergency access, because of the transport vehicles’ weight, length, width, height, and speed on state routes and local roadways. This impact would be potentially significant.

**Mitigation Measure 3.11-1a: Create and implement a traffic control plan and notify the public of anticipated roadway obstructions.**

SMUD or its construction contractor will work with Caltrans, Solano County, and the City of Napa to determine the lowest hourly traffic flows on affected facilities and develop a traffic control plan. The traffic control plan shall specify travel times and days and provide for public notification of anticipated roadway obstructions before transporter travel days. Traffic control plan measures shall include the use of pilot cars for oversize loads; traffic safety measures, such as warning signs; coordination with local jurisdictions; and safety personnel to direct traffic as needed. To minimize impacts on roadway traffic flows, transporters shall travel under loaded conditions during off-peak hours and possibly during evenings or at night. The final plan shall be submitted to all affected agencies for review and approval. After agency approvals have been received, the traffic control plan shall be implemented during transport of the WTG components.

**Mitigation Measure 3.11-1b: Create and implement an emergency access plan and notify emergency services providers of anticipated roadway obstructions.**

SMUD or its construction contractor will work with affected emergency services providers to develop and implement a plan to maintain emergency access during transport of WTG components and throughout the construction period. The plan shall identify alternative emergency access routes; the need to station emergency equipment in areas where access will be reduced; and notification protocols between SMUD, its contractors, and affected providers. The final plan shall be submitted to all affected agencies for review.
and approval. After agency approvals have been received, the emergency access plan shall be implemented during transport of WTG components and throughout the construction period as necessary.

**Mitigation Measure 3.11-1c: Obtain an agency transportation permit for each load exceeding weight, length, width, and height standards.**

SMUD or its construction contractor will submit an application to Caltrans, Solano County, and the City of Napa for a transportation permit for each load that exceeds weight, length, width, or height standards. The applications shall identify the specific transporter to be used and provide details about the turbine components' load specifications, the requested route, and the time and date of transport. All permit conditions shall be implemented during transport of WTG components.

**Mitigation Measure 3.11-1d: Improve roadways to enable safe use or use shorter transporters, and obtain agency transportation permits for transport of extra-legal length vehicles.**

SMUD or its construction contractor will make improvements to public roads to enable delivery of WTG components and provide access for construction equipment. These improvements shall accommodate all turning movements of the maximum-size transporter. A detailed topographic survey shall be conducted to determine the exact limits, and to identify additional areas that may be affected. All roadway improvements shall be designed and implemented in close cooperation with Solano County (and other jurisdictions, if applicable).

An alternative mitigation measure is to use shorter transporters to reduce the impact, although this measure is also expected to require a reduction in the size of the WTG components, which likely will increase the number of trips if the overall turbine dimensions remain the same.

**Significance after Mitigation**

Mitigation Measures 3.11-1a through 3.11-1d require working with Caltrans, the County, and the City of Napa to determine the lowest hourly traffic flows and develop a traffic control plan specifying transporter travel times and days. The measures require a plan for notifying the public regarding affected roadways before the transporters' travel days, and for modifying local roadways to enable transporter access. The measures would also maintain emergency access during transport of WTG components and throughout the construction period. Therefore, implementing Mitigation Measures 3.11-1a through 3.11-1d would reduce this impact to a less-than-significant level.
Impact 3.11-2: Short-term increase in construction traffic on physically deficient roadway segments.

Construction activities would result in a short-term increase in heavy vehicle traffic on state routes and local roads. The project could result in the degradation of pavement conditions along these roadways. This impact would be potentially significant.

For purposes of this analysis, an impact on roadway pavement conditions would be significant if project construction traffic would cause a deficiency in pavement conditions. Access to the project site would be provided primarily via SR 12 east and Shiloh Road, Collinsville Road, Talbert Lane, Stratton Road, Birds Landing Road, and Montezuma Hills Road. Other roadways would also be used during construction; however, because of their distance from the site and because they would not provide as direct a route for materials delivery, those roadways would not likely receive sufficient project traffic during construction to cause substantial degradation. However, SR 12 east and the cited local roads would experience the highest degree of daily heavy truck traffic during construction, and the pavement conditions on these roads could degrade to the point they become deficient (e.g., ruts, cracked pavement). Therefore, this impact would be potentially significant.

Mitigation Measure 3.11-2: Monitor the physical condition of roadway segments along primary access routes to the project site and restore the physical condition of affected roadways to the extent damaged by the project.

SMUD or its construction contractor will conduct a preconstruction survey and assessment of existing pavement conditions along SR 12 east, Shiloh Road, Collinsville Road, Talbert Lane, Stratton Road, Birds Landing Road, and Montezuma Hills Road. If the preconstruction pavement conditions are deficient, the preconstruction pavement analysis shall establish the baseline for required improvements. If the preconstruction pavement conditions are acceptable, improvements shall be required only if the postconstruction pavement condition is deficient, and only to the extent that the project demonstrably contributed to such deficiencies. If deficient following construction, any segments of SR 12 east and Shiloh Road, Collinsville Road, Talbert Lane, Stratton Road, Birds Landing Road, and Montezuma Hills Road that are affected by the project shall be returned to preconstruction conditions after construction. Implementing this measure will ensure that construction activities will not worsen pavement conditions, relative to existing conditions.

Before construction, SMUD will make a good-faith effort to enter into mitigation agreements with Caltrans (for SR 12 east) and Solano County (for Shiloh Road, Collinsville Road, Talbert Lane, Stratton Road, Birds Landing Road, and Montezuma Hills Road) to verify the location, extent, timing, and fair-share cost to be paid by SMUD for any necessary pre- and postconstruction physical improvements. The fair-share amount will be either the cost to return the affected roadway segment to its preconstruction condition or a contribution to programmed planned improvements. Repairs may include overlays or other surface treatments.
Significance after Mitigation

Mitigation Measure 3.11-2 requires monitoring and improvement of physically deficient roadways affected by project construction. Implementing this mitigation measure would reduce the project’s impacts on physically deficient roadway systems to a less-than-significant level.
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