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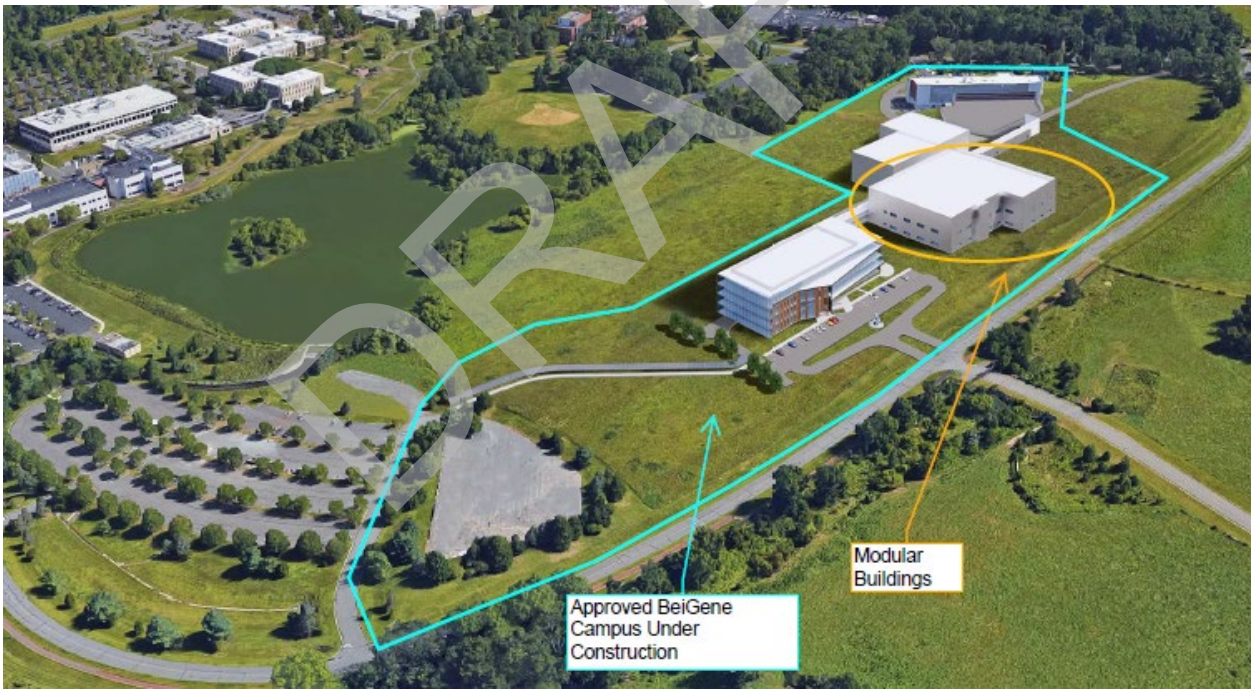
HOPEWELL TOWNSHIP
MODULAR BUILDING TRANSPORT ASSESSMENT FOR BEIGENE

Summary

The BeiGene Campus received Site Plan approval from the Hopewell Township Planning Board in 2022 following the establishment of a Redevelopment Site for the adaptive re-use of the former Bristol Myers Squibb campus on Pennington Rocky Hill Road. The complete development of the BeiGene facility consists of administrative offices, drug substance, drug product, manufacturing and warehousing for the development and delivery of the company's cancer treatment drugs. Two of the planned buildings, the drug substance and drug product buildings, will be constructed with pre-fabricated building modules set on foundations constructed in place.



Rendering of the BeiGene Campus Showing Buildings Constructed as Modular Components

A total of 235 pre-manufactured building modules will be transported to the site to develop the two buildings. The modules will be transported to the site by truck as Oversized Loads Transported via Specialized Articulated Trailers. The modules will arrive by ship to a port outside of Philadelphia, PA. Each module will be transported via I-95 and I-295 to Hopewell on individual truck transports. The

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Re: Evaluation of Modular Building Transport Routes
BeiGene Headquarters
311 Pennington Rocky Hill Road, Hopewell, NJ

modules are all essentially the same size (like sea containers), but the transport trucks vary in size due to the weight of each of the pieces so the loads distributed to the wheels remain within legal limits.

Construction of the site work and foundations has progressed so the building modules can be set into place upon arrival at the project site.

Progress Photo of Building Construction (Foundations for Module Buildings in right portion of photo)

Transport Process

BeiGene has contracted with Bay Crane for the transport of the 235 building modules to the project site. The modules will be transported by varying size trailers. Pilot vehicles and support vehicles will accompany each trailer in the front and rear of each unit, and the local leg of the transport, between I-291 and the project site, will be completed under police escort with on-demand road closures at critical road segments and intersections. Local towing services and maintenance vehicles accompany the transport units to address mechanical issues should they occur.

The trailers consist of multi-wheeled supports with individual articulated steering along the length of the trailer, allowing the vehicles to maneuver much differently than a conventional tractor trailer. Travel speeds of these vehicles are very slow, and turning at intersections is performed slowly often with manual steering of the rear sections of the trailer to allow for the units to clear horizontal and vertical obstructions within the roadways.

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During a turn through a critical intersection, traffic approaching the intersection from all directions will be stopped by the police traffic directors to allow the entire width of the roadway to be utilized for the turning movement.

The process has been planned by BeiGene to transport three modules per weekday to the site. The total operation for the 235 modules is expected to begin early June 2023 and run through the end of September 2023.

Additional detail on the size, type, and number of the various transport trailers, as well as the expected operating times are summarized on the attached Transport Routes prepared by BeiGene.

Transport Route

Based on bridge height limitations on I-295, primarily at Route 206, the transports will exit I-295 at NJ Route 31. Once on Route 31, viable routes were investigated by the BeiGene Team and transport company and discussed with our office as well as Hopewell Police and Fire representatives. Several factors were considered to determine the viability of potential routes, including:

- Total travel length (from I-295/NJ Rte 31) to the project site
- The number of turns, and the geometric limitations at each turn
- Weight and height restrictions with bridge structures on the routes
- Horizontal and Vertical clearance to obstructions (Primarily tree limbs, overhead wires, and traffic signal mast arms, and temporary on-street parking restrictions)

The analyses conducted by BeiGene identified two routes, identified as Options 1 and 2, on the attached summary sheets.

Both local routes begin at NJ Route 31 at the I-295 interchange and proceed north to the Route 31 circle.

Option 1 continues north on NJ Route 31 to North Main Street, then traverses through North Main Street and East Delaware Avenue through Pennington Borough to Pennington Rocky Hill Road.

Option 2 diverts onto Blackwell Road at the Route 31 circle, travels east to NJ Route 206 in Lawrence Township, follows Route 206 and Carter Road through Lawrence, then turns onto Elm Ridge Road to enter the project site at Pennington Rocky Hill Road.

Both routes utilize state and county jurisdiction roads, between I-295 and the project site, for the transport operations. A comparison of the various evaluation factors is summarized on the attached sheets prepared by BeiGene.

BeiGene has recommended Option 1 as the preferred alternative primarily due to:

- A shorter route with less turns reducing the duration of the operation and impact to traffic
- Fewer critical turns with less clearance restrictions

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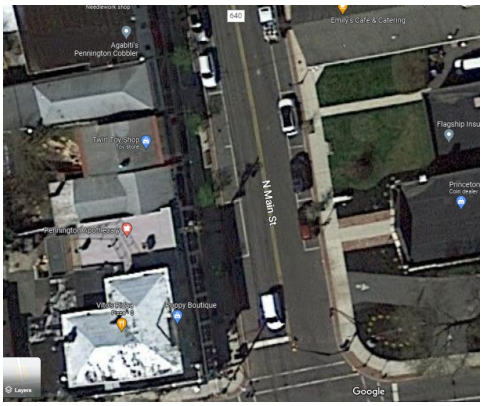
The most critical turn on the Option 1 Route is the left turn onto East Delaware Avenue. To help facilitate the operations, Bay Crane has recommended that the three on-street parking spaces on the southbound side of Main Street (shown as the three vacant spaces in the image below) be restricted to parking during the anticipated operation times. This condition will require authorization from Pennington Borough for the limited duration parking restrictions for the anticipated operations.



Evaluation and Recommendations

Based on the elements evaluated by Bay Crane, Option 1 presents the lesser constraints and offers a preferred route. With fewer critical turning points, opportunities for traffic disruptions are minimized with fewer opportunities for operations to slow or be temporarily suspended should unanticipated events occur.

Operations of this type will have disruptions to traffic patterns as well as inconvenience businesses and residents in the vicinity of the operations. Often, construction operations will lean towards increased disruptions if the overall duration is reduced, such as closing an entire roadway versus stage construction operations during a reconstruction/resurfacing project. In this case, the focus must lean towards minimizing daily disruptions to the greatest extent possible. When considering the entire transport operation, from the Philadelphia Port to the Project Site, the number of units that can be transported each day is limited, and there is minimal opportunity to reduce the overall duration of the operations. Therefore, it is critically important to reduce the daily disruption with shorter travel paths and less critical points for delay.

The safety and effectiveness of this operation relies heavily on expectancy of the anticipated operations on a daily basis. In our discussions with BeiGene, we have stressed establishing a secondary/contingency plan that is identified in advance and understood by all stakeholders that could be implemented in the event that the primary route is blocked.

In comparing the two routes simultaneously, as shown in the image below, The Route 31 circle is identified as the critical node separating Options 1 and 2. The railroad overpass near the Pennington

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Quarry (top of image) presents a height restriction that the transport vehicles cannot cross, making the Option 1 route north of the circle the only viable route.

We recommend that the Option 2 route be established as the back-up route for the second or third vehicle delivery for a given day should the Option 1 route become unavailable.

BeiGene has proposed two windows of time for operation, with a mid-day gap to be sensitive to service businesses in Pennington.

With the time restrictions at the port, and the restrictions on convoying the vehicles on the state highway, it is likely that one transport would occur in the later portion of the morning time window, and two would occur in the afternoon period.

An additional control discussed as a contingency would be establishing a critical cutoff time in the afternoon window that the Township would be able to suspend operations if delays in the route would push transport past the 3:00PM time window. Should this occur, transport vehicles would be required to stage until 5:30 – or 6:00 PM before resuming operations. Initial recommendations are a 2:30 PM cutoff at Rte 31 / I-295, with Hopewell Township officials having the final word/discretion on allowing operations to resume.

BeiGene has agreed to look into possible areas on site for expanded staging that may allow for additional module transports / day in an effort to reduce the total duration of the operation.

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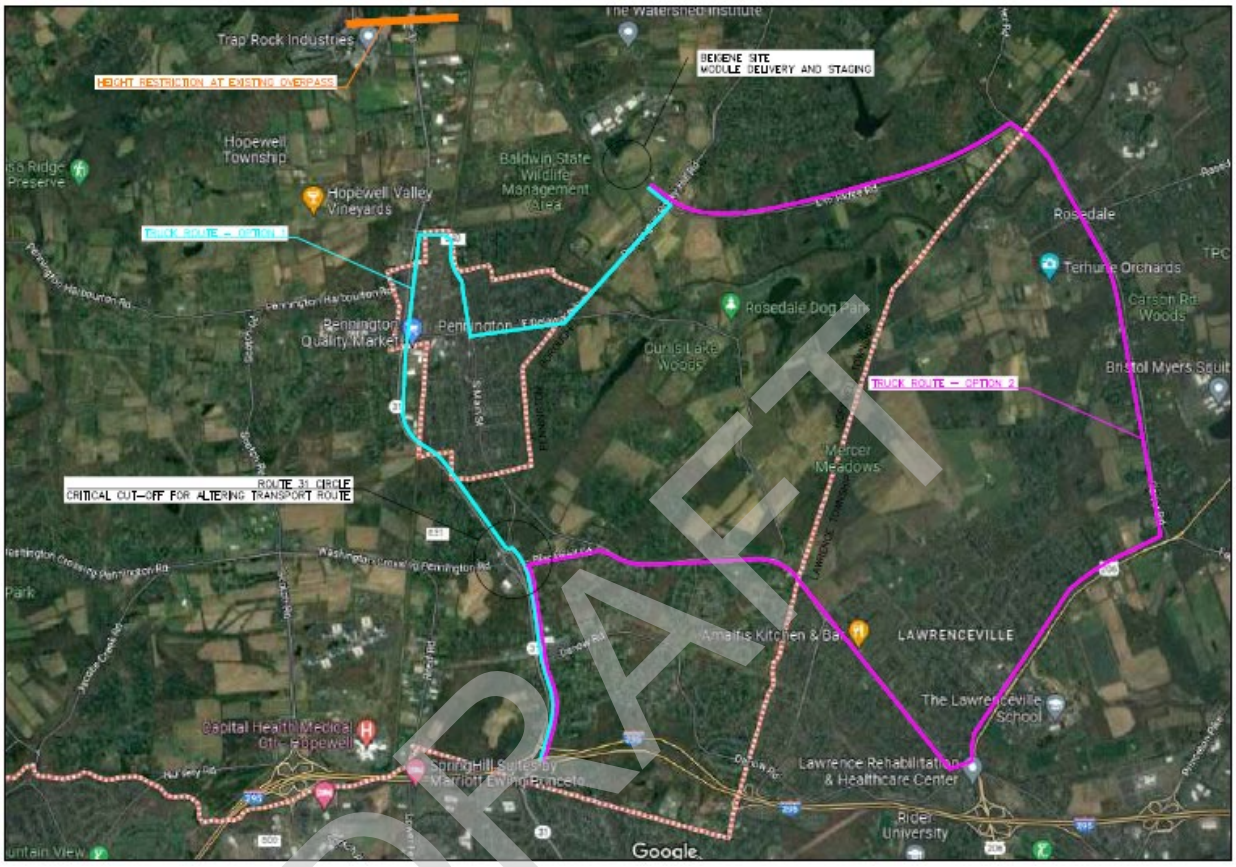


Anticipating that the start of the operations remains on schedule for early Jun 2023, I recommend that the Hopewell Township Committee be briefed on the planned routes, and anticipated schedules. Additionally, I recommend that the Administration offices in Pennington Borough and Lawrence Township be equally notified.

BeiGene has offered to make a presentation and/or be available to representatives to all of the affected municipalities to answer questions and provide additional information is desired. I recommend that the plans be presented through the Administration of each municipality as a first step to discuss the technical elements that were evaluated in establishing the routes.

Once the route and schedule have been solidified, a simplified map (similar to the image above) identifying the route, alternate route, operating times and contact for BeiGene should be prepared and published on Hopewell Township's website as a general announcement. The map can be shared with Pennington and Lawrence as well.

Comparison of Trucking Routes

BeiGene

Schedule

- Begin: ~05 June 2023
- Finish: ~27 September 2023
- 3 Modules / Day

Two windows of travel:

- 9 AM – 11:30 AM
- 1 PM – 3 PM

Support

- Police escort with Jobs4Blue
- Hawk's Recovery and Towing is the contact for breakdowns

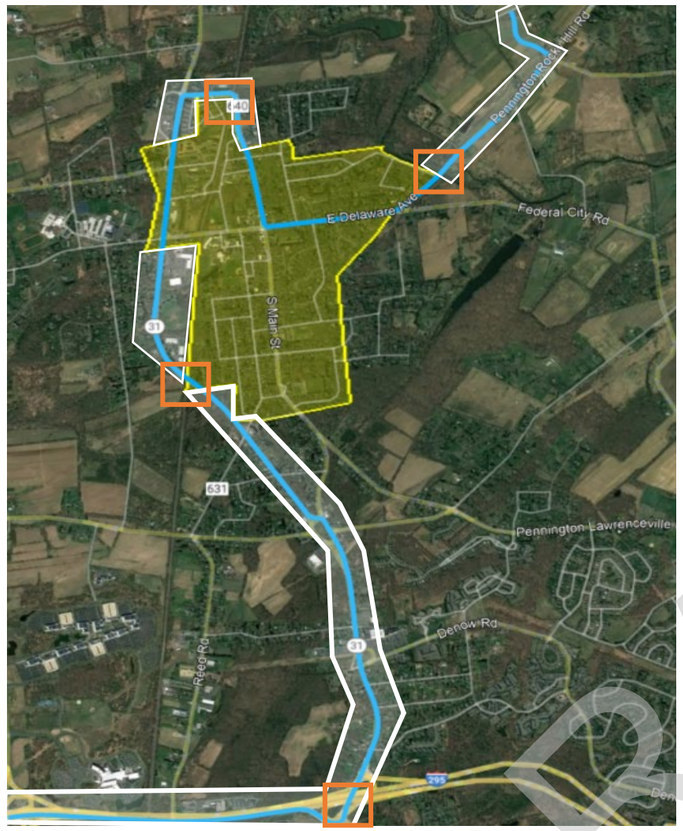
Trailer Breakdown

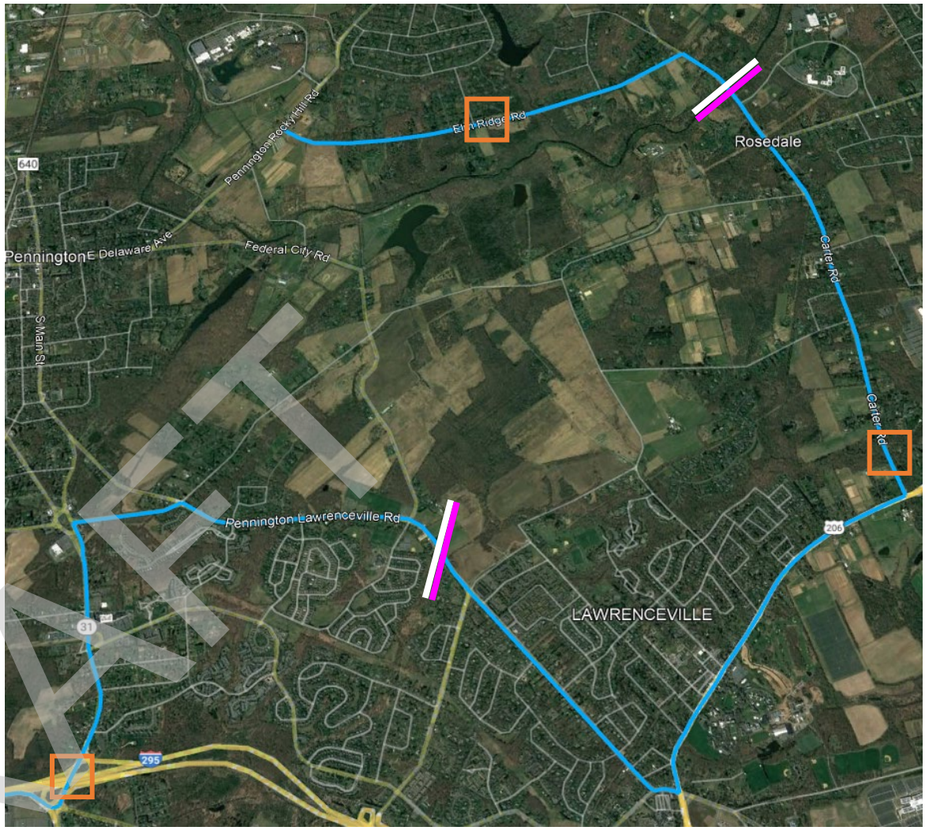
Supermax: 150' L, 17' W, 16.7' H

Mega: 87.3' L, 14.7' W, 16' H

Goldhofer: 89.2' L, 14.7' W, 15.8' H

Trailer Type	Quantity
Supermax	6
Mega	229
Goldhofer	
Total	**235**





Map Legend

- Pennington Borough
- Hopewell Township
- Lawrence Township

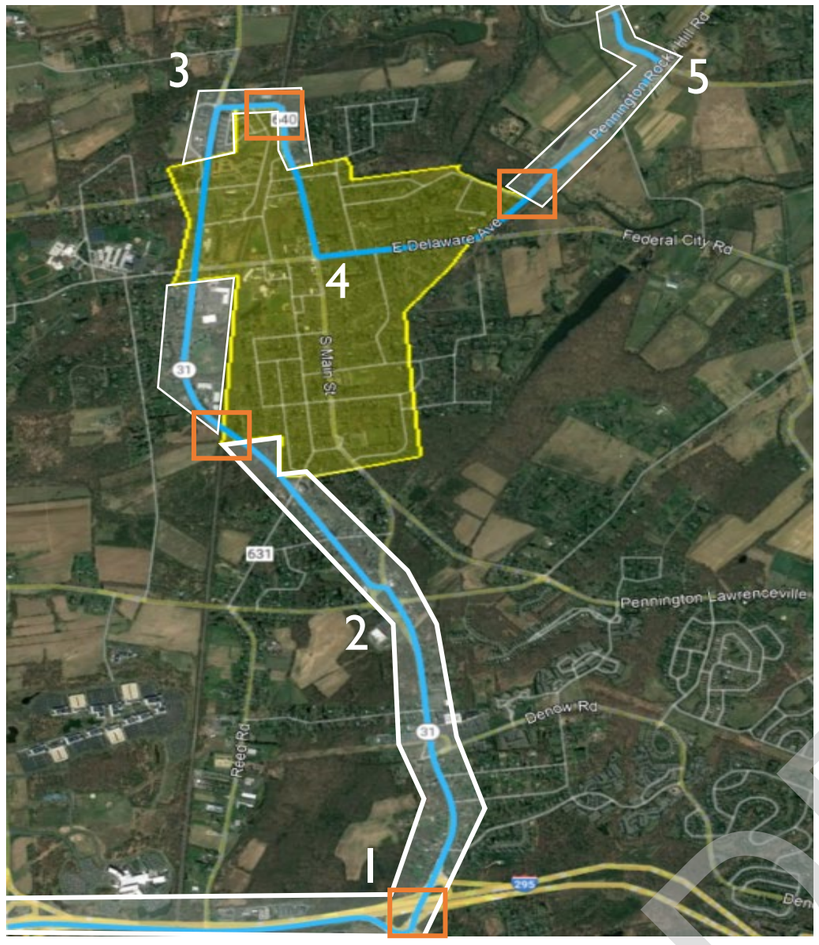
Bridges are boxed in orange on the images

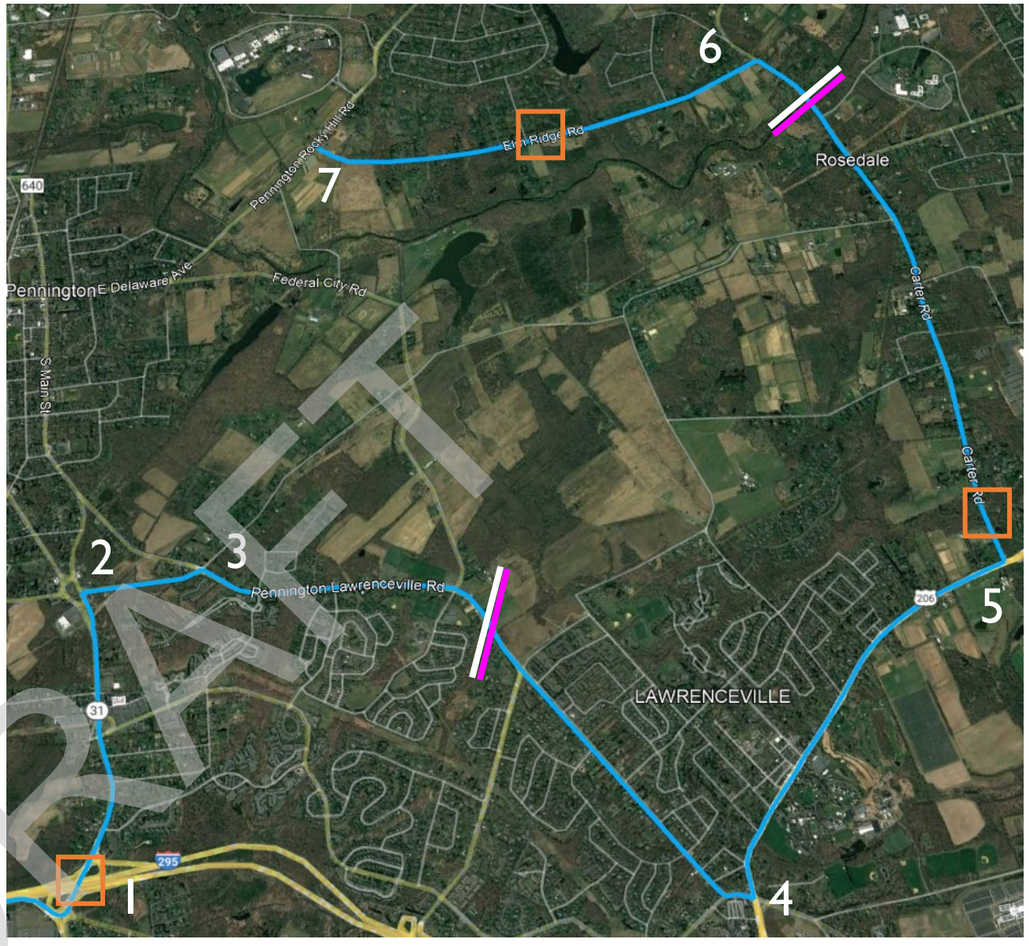
BayCrane Logistics

- Front and rear escort
- Redundant means of communication
- Traffic relief every 15 mins or first safe opportunity afterwards
- Trucks give way to emergency response

Comparison	Option 1	Option 2
Time / Distance	30-45 minutes / 5.8 miles	3 hours / 11.4 miles (multiple sharp turns & significant low wires)
Oncoming Lanes	N Main St & Delaware Ave	US-206 N, Carter Rd, Elm Ridge Road
Height Challenges	Minor Wires & Stoplights	Heavy Trunk Lines (Lawrenceville, Carter Rd), Minor Wires, Stoplights
Average Speed	15 mph max, avg speed 10 mph, 1-2 mph while turning	Avg speed 5 mph due to low hanging wires & multiple sharp turns

Turn By Turn of Trucking Routes





Map Legend

- Pennington Borough
- Hopewell Township
- Lawrence Township

Bridges are boxed in orange on the images

Turn #	Turn Description
1	Exit I-295 onto State Route 31 North
2	Take the Third exit on roundabout continuing on State Route 31 N
3	Turn Right off State Route 31 N onto N Main Street
4	Turn Left off N Main Street onto E Delaware Road
5	Turn Left off Pennington Rocky Hill Road into the construction entrance

Turn #	Turn Description
1	Exit I-295 onto State Route 31 North
2	Take the First exit on roundabout onto Blackwell Road
3	Turn Right off Blackwell Road onto Pennington Lawrenceville Road
4	Turn Left off Pennington Lawrenceville Road onto US Route 206
5	Turn Left off US Route 206 to Carter Road
6	Turn Left off Carter Road to Elm Road
7	Drive straight through the intersection into the construction entrance