INDIANA MICHIGAN POWER
An AEP Company

MARKLE EXTENSION
TRANSMISSION LINE PROJECT

WELCOME TO OUR VIRTUAL OPEN HOUSE

I&M representatives invite you to attend this open house to learn more. We welcome your feedback as we strive to make informed decisions.

Please share your thoughts by using the comment form on the webpage, calling 833-441-2260 or emailing IM_OUTREACH@AEP.COM.

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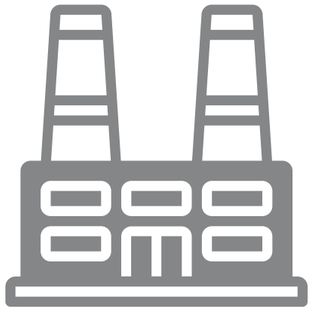
HOW THE SYSTEM WORKS

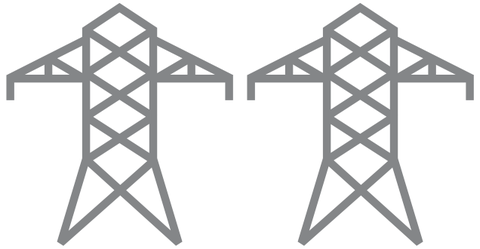
HIGH VOLTAGE

LOCAL TRANSMISSION >>



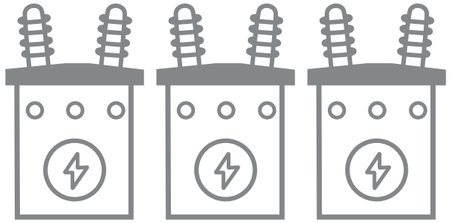
1) GENERATION STATIONS

Utilities produce electricity at coal, natural gas, nuclear, wind and hydroelectric power stations and then transport it long distances over transmission lines.



2) EHV TRANSMISSION

Extra-high Voltage electric transmission lines are generally 765 kilovolt (kV), 500-kV, and 345- kV on I&M's system.



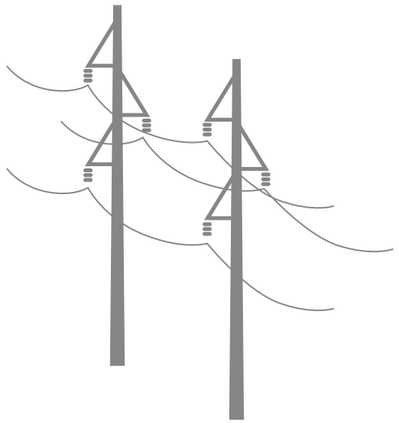
3) SUBSTATIONS

Substations direct the flow of electricity and either decrease or increase voltage levels for transport.

HOW THE SYSTEM WORKS

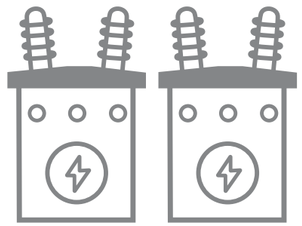
LOCAL TRANSMISSION

DISTRIBUTION >>



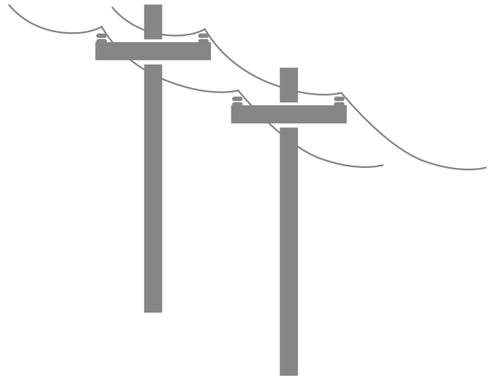
4) LOCAL TRANSMISSION

I&M typically uses 69-kV and 138-kV transmission lines to move power shorter distances - for example, to different parts of a city or county.



5) SUBSTATION

Substations transform 69-kV and 138-kV electricity into lower distribution level voltages such as 34.5 kV, 12 kV, or 7.2 kV.



6) PRIMARY DISTRIBUTION

These main lines (also called circuits) connect substations to large parts of the community.

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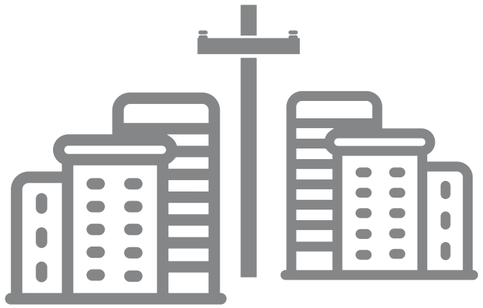
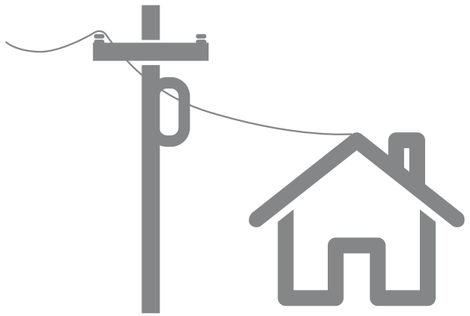
HOW THE SYSTEM WORKS

DISTRIBUTION



7) LATERAL DISTRIBUTION

These smaller capacity lines deliver electricity to neighborhoods and other smaller groups of customers.



8) INDIANA SERVICE

Smaller transformers step down voltage to levels customers can use. Individual residences typically use 120/240 volts.

TO USE AN ANALOGY, ELECTRIC TRANSMISSION IS SIMILAR TO OUR NATIONAL ROAD SYSTEM. THREE KINDS OF POWER LINES EXIST BETWEEN POWER PLANTS AND HOMES AND BUSINESSES:

- Extra-high Voltage lines are like electrical interstate highways.
- High-voltage local transmission lines are like four-lane roads.
- Distribution lines are like two-lane roads that eventually connect to your driveway.

PROJECT NEED & BENEFITS

PROJECT OVERVIEW

The project involves:

- Building about 3 miles of 138-kilovolt (kV) power line.
- Installing switch equipment to connect the new power line to an existing 138-kV power line.

NEED AND BENEFITS

The improvements:

- Provide electric service to the future Heartland REMC Markle Substation located off Novae Parkway, north of Markle.
- Address the area's growing demand for electricity by linking the substation to the power grid.
- Allow equipment isolation during power outages to limit the number of impacted customers, ensure power grid functionality and operational flexibility.

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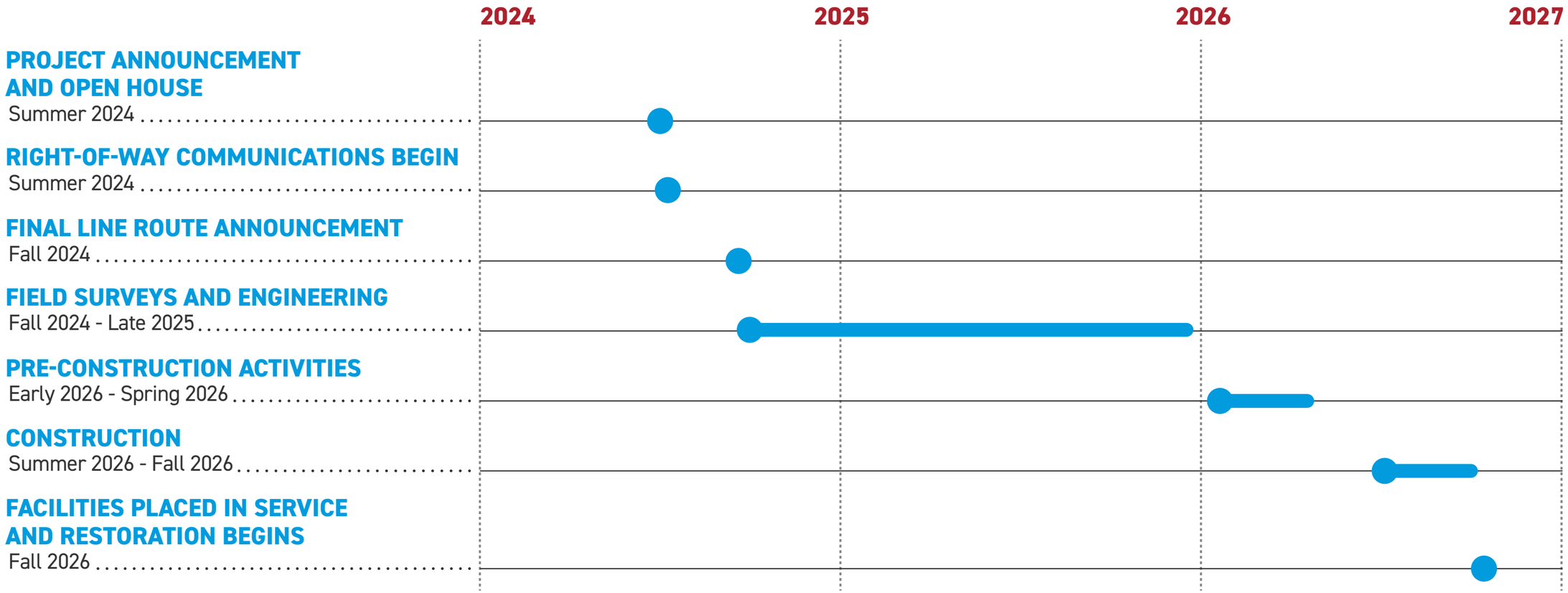
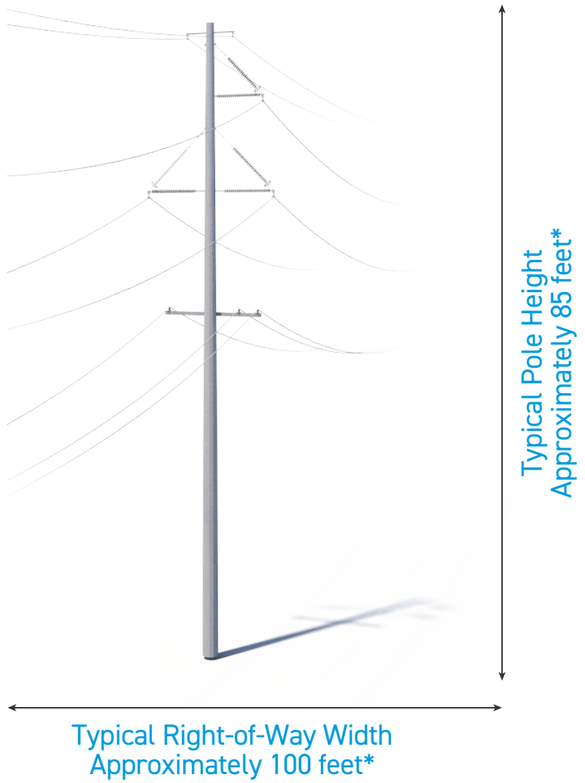
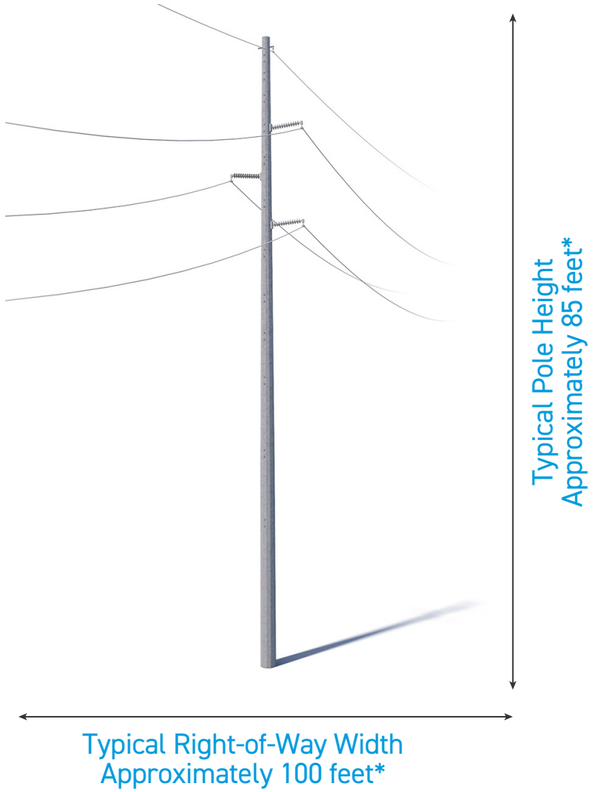
PROJECT SCHEDULE



*Timeline subject to change.

PROPOSED STRUCTURES





The project involves installing steel poles

Typical Pole Height: Approximately 85 feet*
Typical Right-of-Way Width: Approximately 100 feet*

*Exact pole, height and right-of-way requirements may vary.

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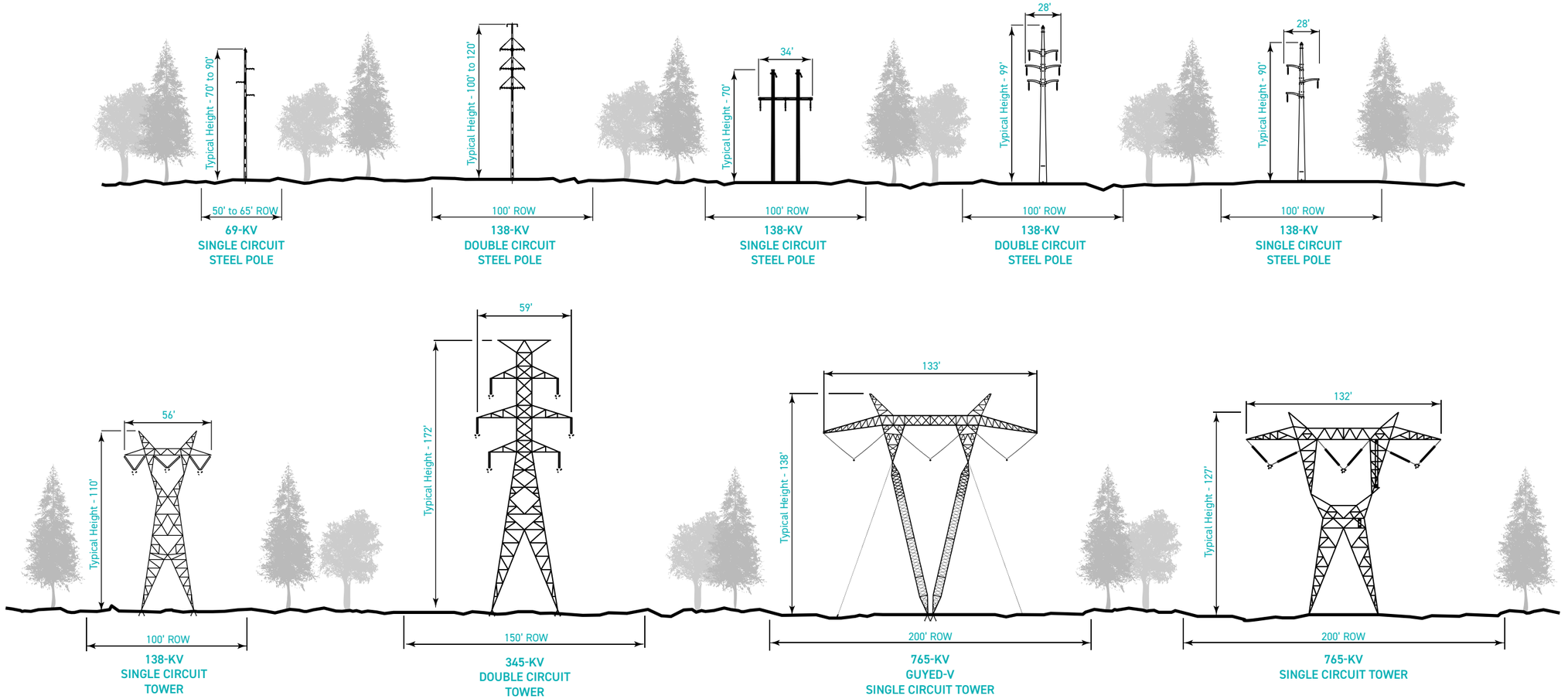
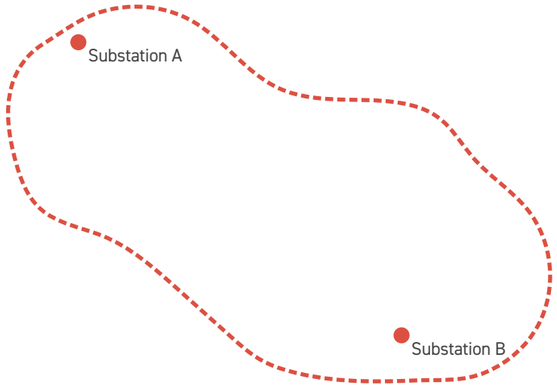
STRUCTURE COMPARISON

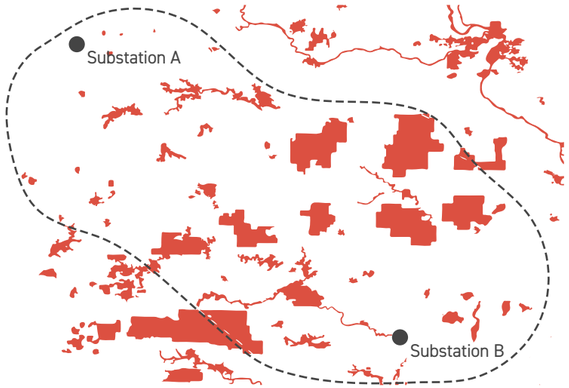
Typical structure heights are based upon voltage and configuration. Structures are not to scale but are shown in proportion to each other. Actual heights will vary depending on terrain.



ROUTING PROCESS

I&M implements a comprehensive siting process that takes land use, the environment, public input and engineering guidelines into account to develop a transmission line route. The information below illustrates each stage of the routing process.





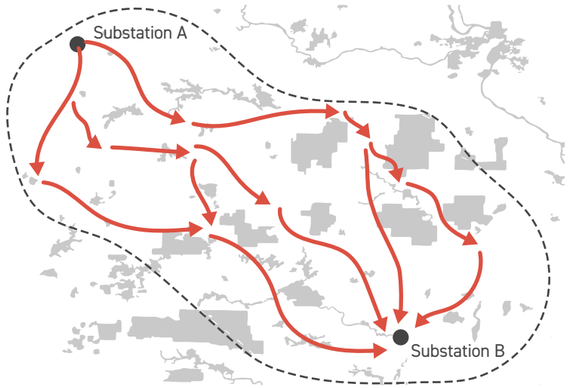
1) STUDY AREA

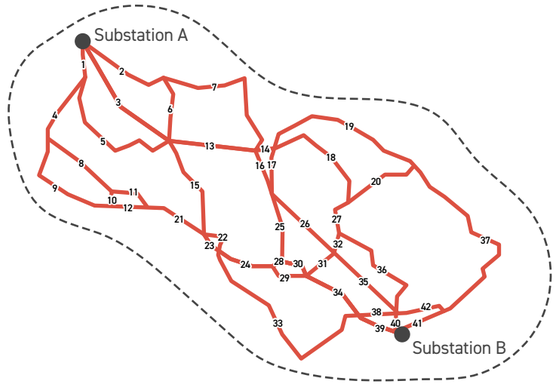
I&M develops a study area for the project that incorporates both end points of the power line and the area between.

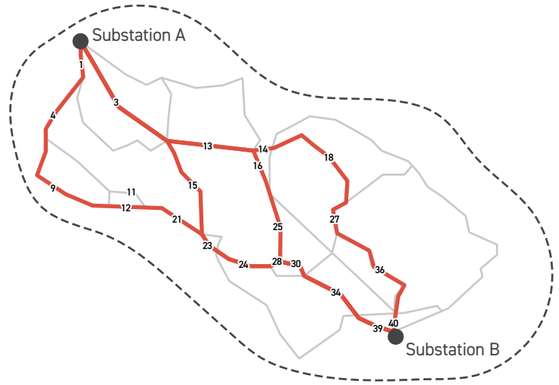
2) DATA GATHERING

Data is gathered for the defined study area including environmental, land use, historic and cultural resources, existing infrastructure and sensitive areas.

ROUTING PROCESS







3) CONCEPTUAL ROUTES

The routing team uses this information to develop conceptual routes adhering to a series of general routing and technical guidelines.

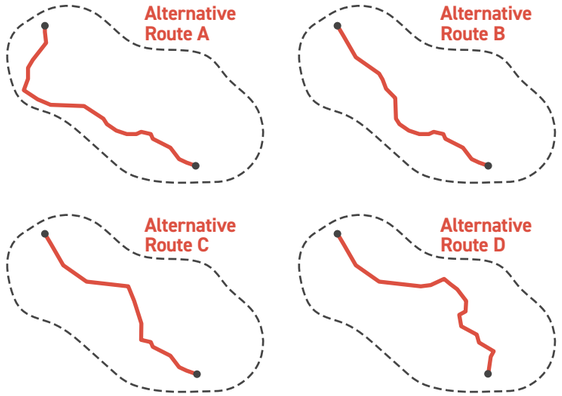
4) STUDY SEGMENTS

Conceptual routes are broken up into study segments. Where two or more potential study segments intersect, a node is created, and between two nodes, a link is formed. Together, the network formed by these links is referred to as potential study segments.

5) REFINED STUDY SEGMENTS

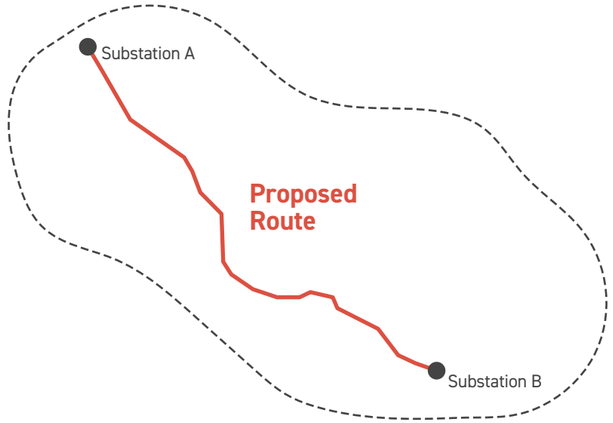
As more information is gathered, the study segments are refined. Some study segments are eliminated or modified, leaving the refined study segments for further consideration.

ROUTING PROCESS



6) ALTERNATIVE ROUTES

After public input is gathered, study segments are further refined and evaluated. The most suitable segments are selected and assembled into alternative route options.



7) PROPOSED ROUTE

Alternative routes are assessed and a proposed route is chosen. The proposed route minimizes impact to the community and environment, while considering cost, line length and design requirements.

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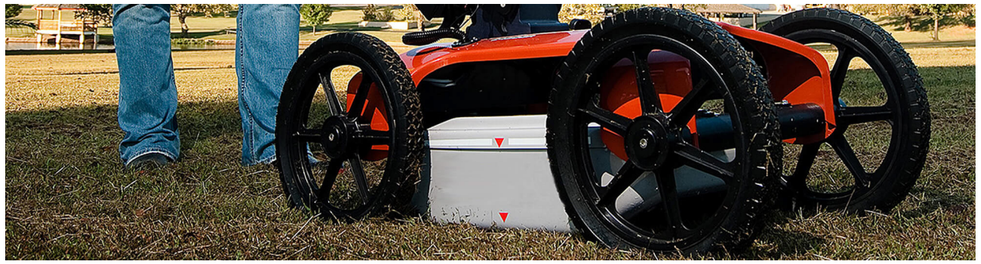
FIELD ACTIVITIES



GROUND PENETRATING RADAR

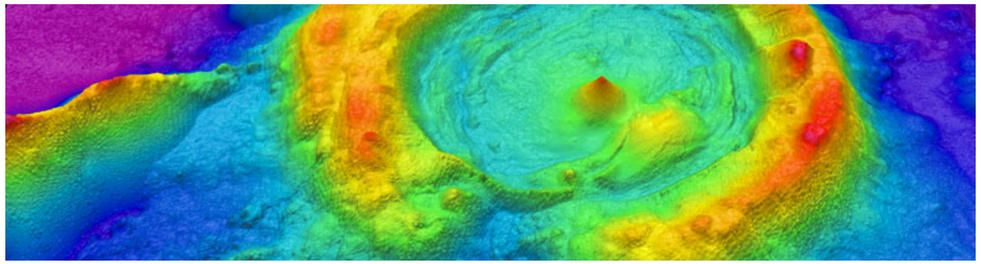
Ground Penetrating Radar (GPR) helps identify the location of underground utilities. A device that looks similar to a lawnmower, and is nondestructive to the soil, uses radio frequencies to detect objects below the ground's surface. Maps and images are created from the data.

HELICOPTER

Challenging terrain or other restrictions/obstructions can make accessing certain parts of a project area difficult. In these locations, crews use helicopters to install structures, string conductors, per form line work and maintain electric facilities. Company representatives work with local media out lets to communicate these activities to the public.

HYDRO EXCAVATION

Crews use hydro excavation (hydrovac) in areas where many underground utilities are located near each other. This process involves using pressurized water to break down soil to expose underground utilities. Afterward, crews backfill the area. The process helps prevent damage to underground infrastructure while gathering important information.



LIDAR

LiDAR (Light Detection and Ranging) uses laser pulses to measure the distance of an object to the source. The data points result in digital 3D maps for accurate design and engineering. LiDAR surveying crews use mobile (car or aerial vehicle) or static (tripod) equipment.

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FIELD ACTIVITIES

SOIL BORINGS

Field crews use a drill to bring up soil samples and then backfill the holes. Testing the core samples helps determine soil conditions in the area. Soil conditions and types can affect structure location and foundation design.

CULTURAL RESOURCE SURVEY

Field crews walk the area and conduct multiple excavation tests to identify historical and archaeological artifacts. Landowners also provide information about their property to survey crews.

ENVIRONMENTAL SURVEY

Surveyors collect information about the habitats and physical attributes of the project area. They also look for ecological concerns like wetlands, flood plains and forests. This process can help protect endangered species, such as the Indiana Bat and American Burying Beetle.

UNMANNED AERIAL VEHICLES (DRONES)

Unmanned aerial vehicles (UAVs), or drones, perform aerial inspections and safely gather data and detailed images of electric facilities. Company employees and vendors comply with all commercial Federal Aviation Administration (FAA) guidelines. Company representatives work with local media outlets to communicate these activities to the public.

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FIELD ACTIVITIES

STAKING

- Field crews use staking to mark the project area, identify utility equipment and pinpoint future structure locations. This process essentially transfers engineering and construction plans to the field.
- Right-of-way crews use staking to identify parcel boundaries, easement boundaries and other utility locations within the company's rights-of-way.
- Environmental crews use staking to identify wetlands or other environmentally sensitive areas.

FIELD SURVEY

- Field survey crews help determine an appropriate route for a new transmission line by identifying constraints within the project area.
- Engineers conduct extensive studies of the terrain and soil to determine what types of structures and foundations are most suitable. They also gather information to create digital 3D maps of the project area to help engineer and design the project.

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RIGHT-OF-WAY

I&M HAS TWO KEY PHILOSOPHIES THAT PERTAIN TO POWER LINE RIGHTS-OF-WAY:

1 Routes should cause the least possible disturbance to people and the environment.

2 Property owners should be fairly compensated for any land rights that must be acquired.

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RIGHT-OF-WAY

I&M studies the land and proposes routes that reduce impacts on property owners.

I&M reaches out to landowners in the following ways:

TO GAIN RIGHT-OF-ENTRY TO BEGIN:

- Environmental assessments
- Appraisal work
- Land surveying, soil boring and other field activities
- Cultural and historic resource reviews

TO SECURE RIGHT-OF-WAY AND COMMUNICATE:

- Landowner compensation
- Terms and conditions of easement
- Width of the right-of-way

TO OUTLINE I&M'S CONSTRUCTION PROCESS WITH A SPECIFIC FOCUS ON:

- Property restoration
- Damage mitigation as appropriate

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VEGETATION MANAGEMENT

WHAT IS VEGETATION MANAGEMENT?

The practice of controlling the growth of trees and other woody stemmed vegetation in line corridors and around substations, while maintaining respect for the environment.

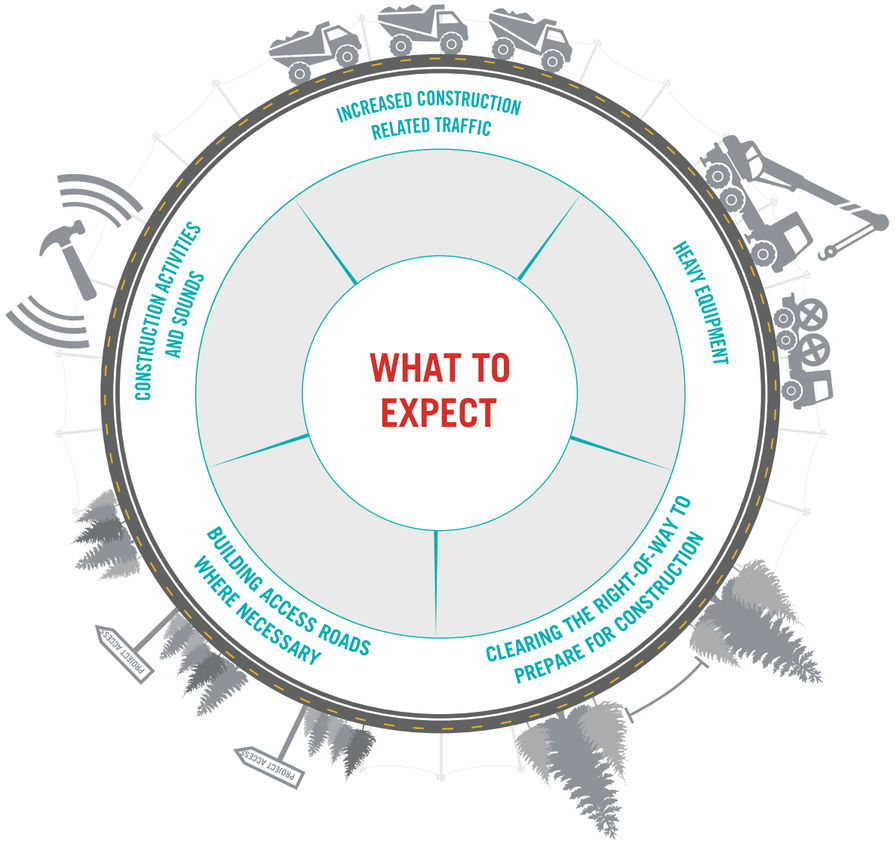
WHY IS IT DONE?

To minimize power outages caused by trees and other plants coming into contact with power lines.

THE GOALS OF I&M'S VEGETATION MANAGEMENT PROGRAM ARE TO:

- Protect our system and minimize outages
- Minimize any adverse environmental impacts
- Ensure compliance with all applicable laws and regulations
- Perform our work as safely as possible, and
- Maintain a positive relationship with land owners and the public

CONSTRUCTION PROCESS



I&M understands the work related to transmission grid improvements can sometimes be an inconvenience. That's why the company makes every effort during the construction process to respect the environment and our neighbors, while working safely to ensure reliable electric service.

I&M plans to work with individual property owners throughout the construction process. Team members provide details of upcoming work and listen to customer feedback. If damages occur during the construction process, the company works to restore property as close to its original state as possible.

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THANK YOU!

Thank you for visiting the project virtual open house. For more information and project updates please visit the project website, or contact us with any additional questions.

REPLAY OPEN HOUSE

DOWNLOAD SLIDE DECK

CONTACT US

VISIT PROJECT WEBSITE