

Introduction

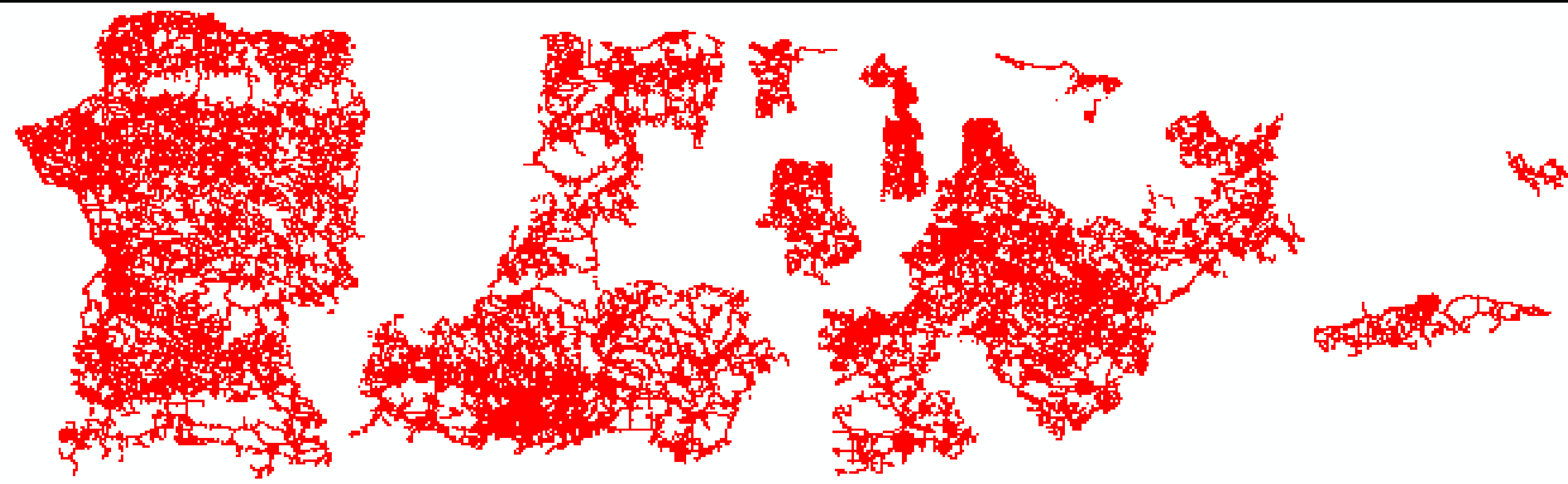
Many DOTs have incomplete GIS linework and/or data. Open data, such as OpenStreetMap or TIGER, provides an alternative to using excessive resources to complete state and local route linework. OpenStreetMap was used in Puerto Rico to supplement state route linework with local routes in several sections across the island. This integration method can potentially be used by DOTs worldwide.

Objectives

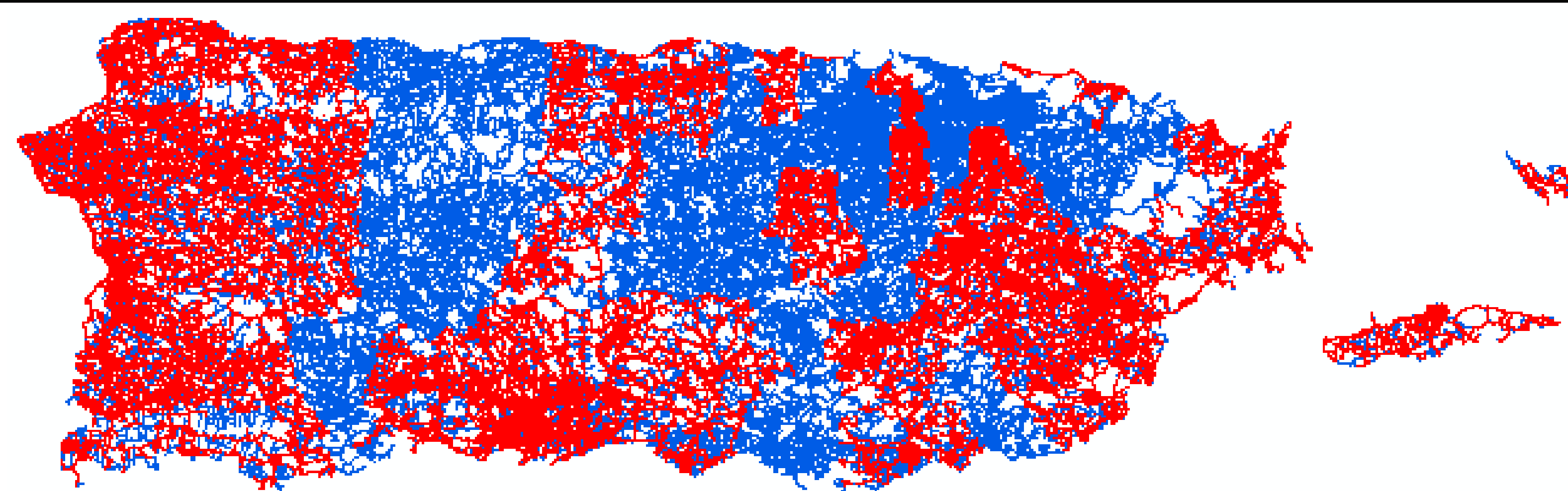
Use Geographic Information Systems (GIS) to:

- Merge existing linework with open data linework
- Integrate linear referencing methods
- Evaluate the effectiveness of using open data as a supplement to incomplete linear referenced road networks

Methodology



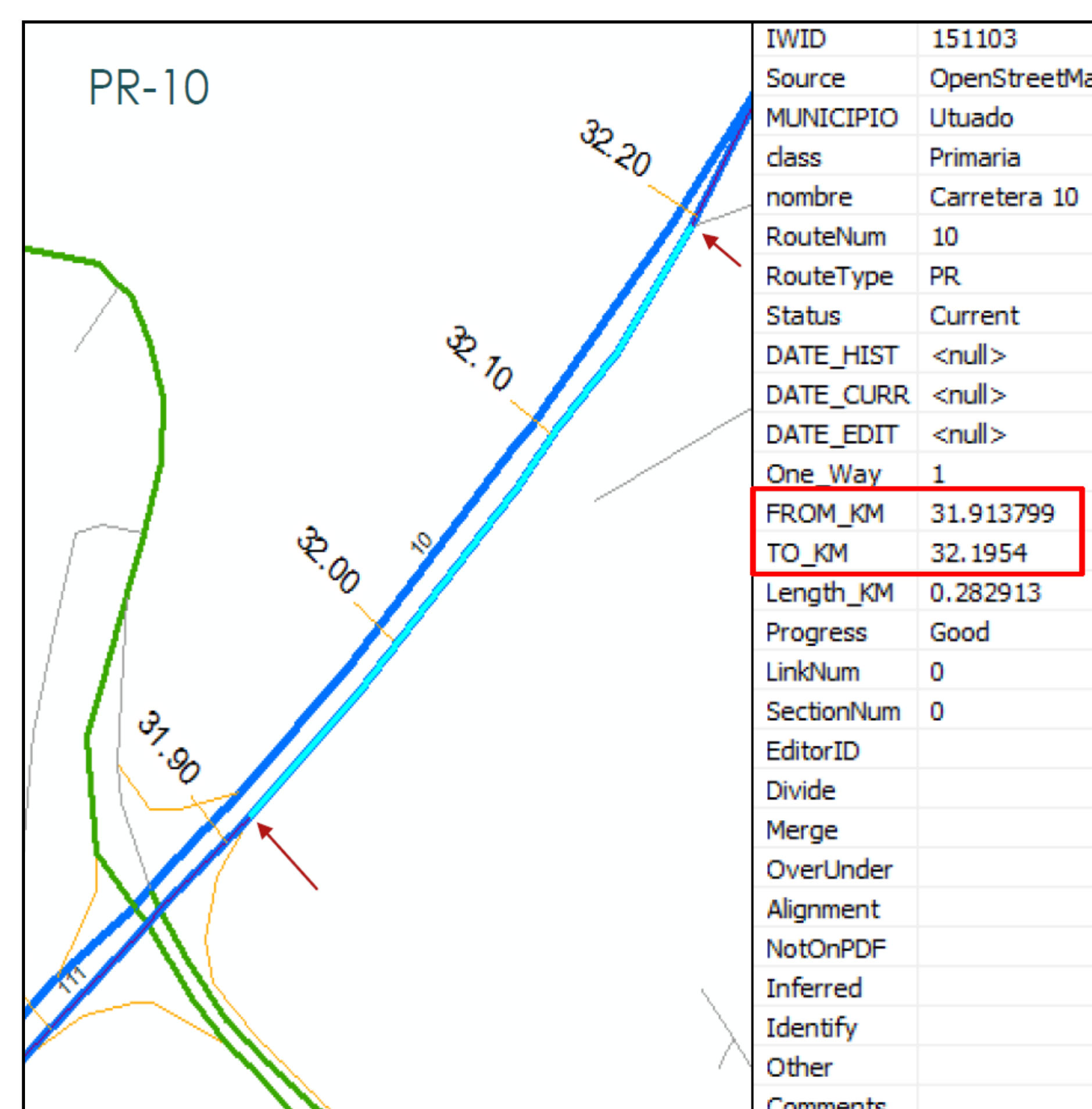
1) Identify incomplete sections in existing linework



2) Merge existing linework with open data linework



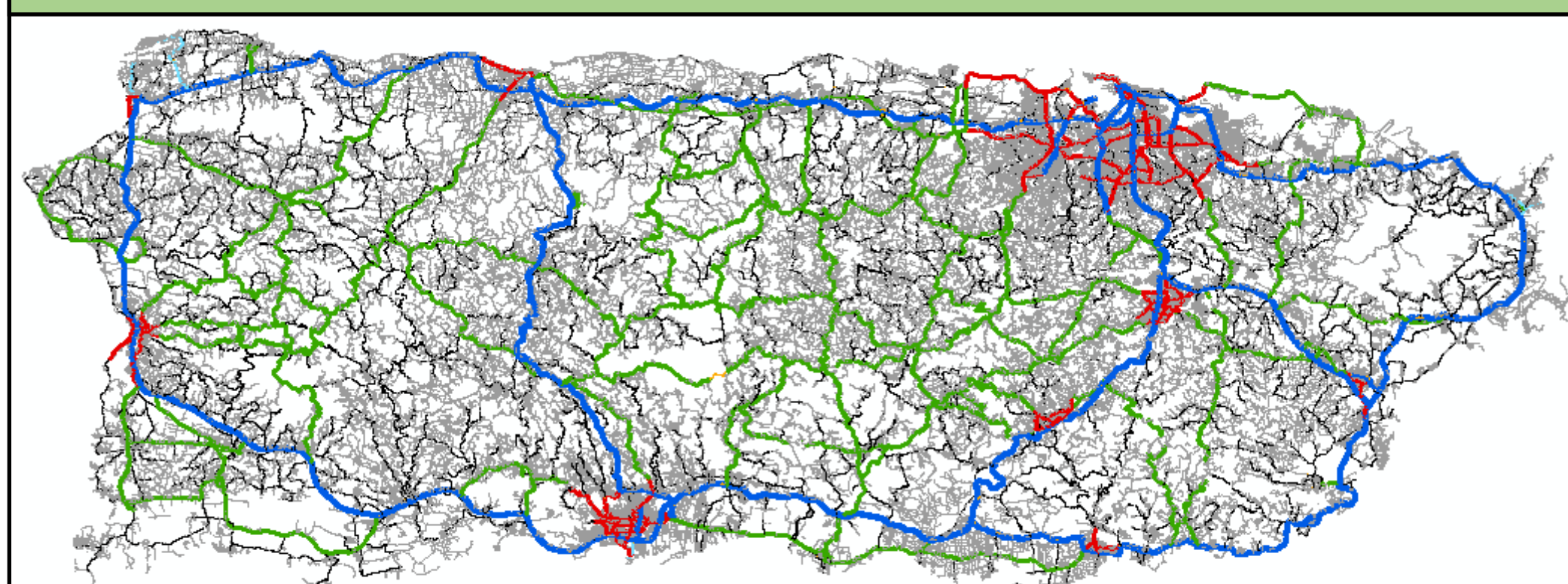
3) Manually edit edgework by stretching/trimming vertices



4) Integrate linear referencing methods:

- **Link-section** identification
- **Route-kilometer** integration
- **Route-route** integration

Results



OpenStreetMap was used to create a connected and complete roadway network. Both local and state routes are mapped on the same layer. Linear referencing methods were successfully integrated.

Conclusion

Open data is a viable source of linework and data can be used to supplement existing DOT GIS roadway networks. There is a degree of linework and attribute inaccuracy due to collaborative mapping; therefore, the time and effort required to correct these errors should be weighed against the resources needed to draw linework and attribute data from scratch.

Future Work

- Use GIS linework and data in a web-based tool for crash mapping and analysis
- Additional editing on inaccurate segments

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