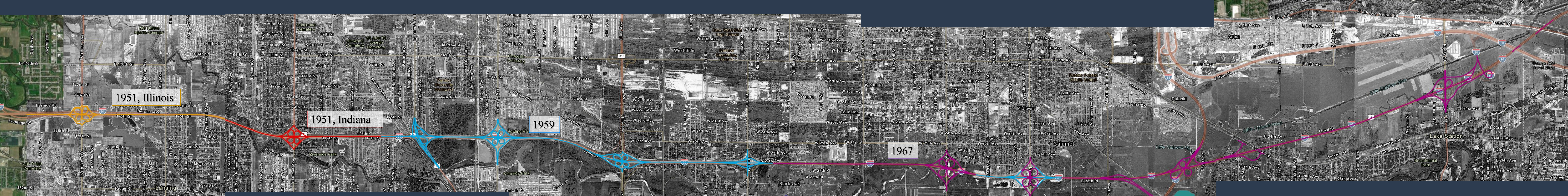


Assessing the Environmental Impact of the Borman Expressway in the Calumet Region

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Introduction

In 1949, construction began on the Tri-State Highway in the Calumet Region of Northwest Indiana. Today, this corridor is known as the Borman Expressway, one of the most heavily traveled and economically important roadways in the region. The purpose of this project is to evaluate the highway's impact on surrounding communities.



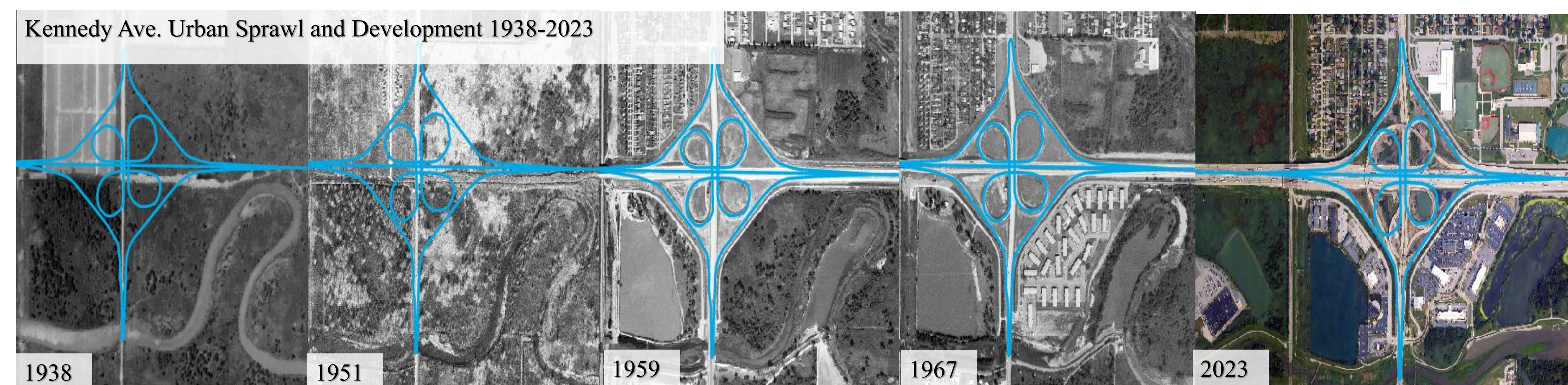
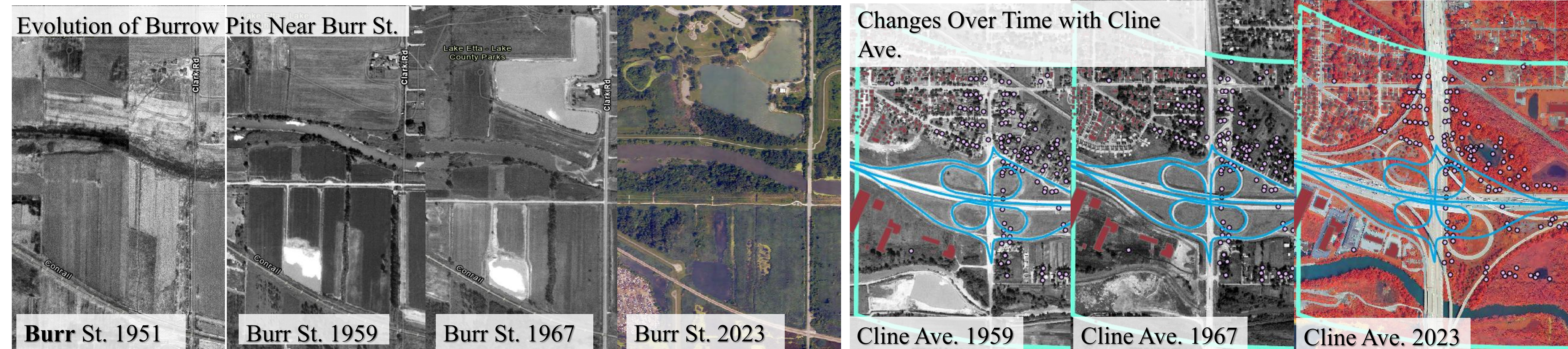
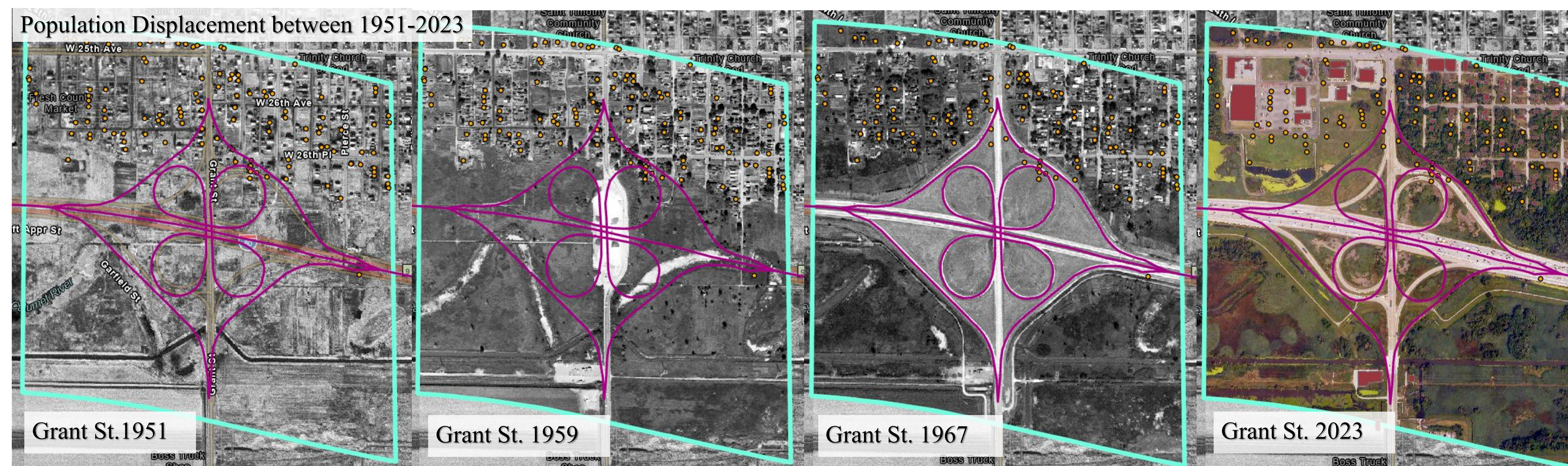
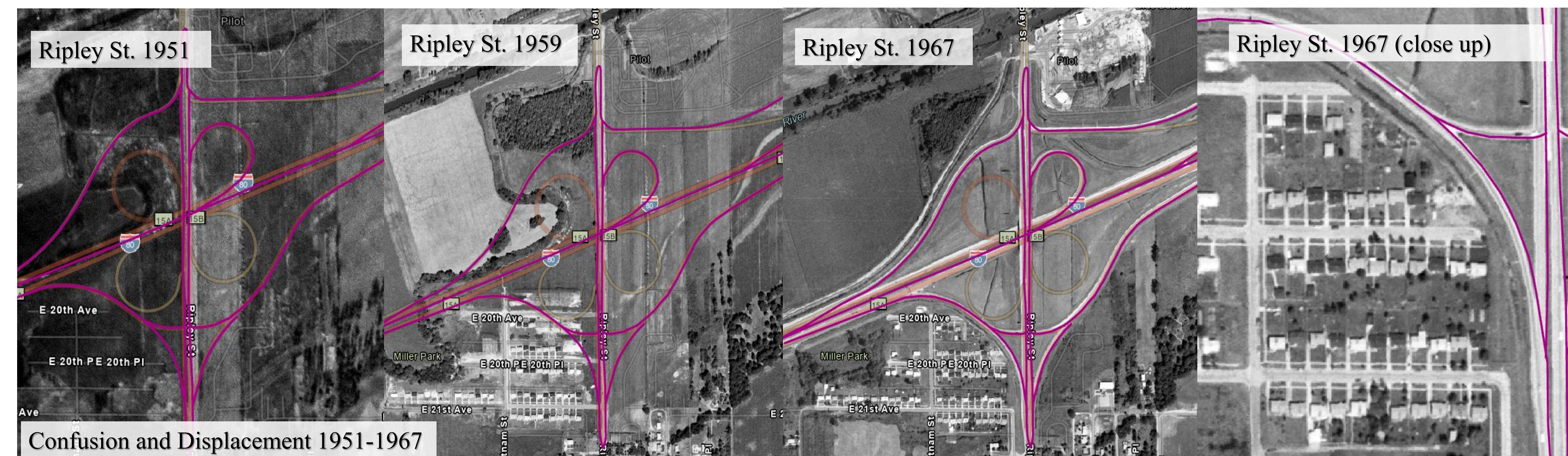
Who was Frank Borman?
Born in Gary, Indiana, he was a NASA astronaut and U.S. Air Force colonel who commanded the Apollo 8 mission in 1968, which is the first mission to fly around the Moon.

Geological Setting

Much of the Borman Expressway lies in the Little Calumet River Basin. The river is relatively young, beginning its journey about 4500 years ago, after Lake Michigan drained from its Toleston High Stand position. It occupies a topographic low between the older Calumet Beach to the south and the younger Toleston Beach to the north.

Methods

Historical aerial photographs were georeferenced, clipped with Python, and manually mosaicked to reconstruct pre- and post-construction landscape conditions along the Indiana segment of the Frank Borman Expressway (I-80/94). Buildings were mapped from a recent aerial image (2023) using deep-learning detection tools for comparison with the historic aerial photos. Changes in structure density were used to estimate displacement associated with original expressway construction and recent redesign activities. Selected expressway ramp locations were analyzed as representative case-study segments to evaluate patterns of residential displacement and long-term landscape restructuring along the corridor.



Discussion

Importantly, it is the regional geomorphology of the Little Calumet River Basin provides a sparsely populated low-relief corridor suitable for the construction of the Frank Borman Expressway. Alignment of the floodplain terrain helped to minimize large-scale population displacement. Although mainline alignment avoided some developed areas, expressway construction produced hundreds of residential displacements. Borrow pit excavation further expanded areas during the construction phase, causing further environmental changes to both an ecologically and geologically sensitive area. Recent reconstruction at the Grant St. expressway ramp demonstrates that corridor-related displacement continues into the present, suggesting infrastructure impacts along the Borman Expressway represent a multi-phase process extending across generations.

Conclusion

Geo-referencing aerial imagery demonstrates that the Frank Borman Expressway corridor followed floodplain terrain associated with the Little Calumet River Basin while concentrating residential displacement and expressway ramp locations. Burrow pit excavation extended landscape modification beyond the roadway footprint, and recent expressway reconstruction shows that the corridor-related displacement continues into the present. Together, these results indicate that infrastructure impacts along the Frank Borman Expressway represent a long-term, multi-phase landscape transformation rather than a single mid-twentieth-century construction event that needs to be documented and preserved to better understand and plan future construction events.

Acknowledgements

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References

For Aerial Imagery: U.S. Geological Survey Earth Explorer