Background
Located in the Westnedge Hill neighborhood of Kalamazoo Michigan, Bronson Circle is 950 linear feet of asphalt pavement that serves thirteen single family residences. This small stretch of road diverges and merges onto Bronson Boulevard, resulting in a very low traffic volume.

Site Layout and Traffic Design
- Redesigned the street with a 32 ft. uniform width; which accommodates a firetruck turning radius, while allowing on-street parking.
- 30 MPH design speed
- Provided a 5 ft. concrete sidewalk on the inside of Bronson Circle.
- All trees removed will be replaced.

Design Considerations
With the current conditions, Bronson Cir. has a few geometric flaws and inconsistencies. The street width is non-uniform, and the southwest corner has poor sight triangles for traffic. Additionally the pavement is deteriorating, drainage is inadequate, and the street lighting utilizes outdated technology. A constant consideration throughout all of these elements was sustainability.

Sustainability
If we want sustainable communities in the future, it starts with sustainable designs today. With this in mind we focused on sustainable design in all aspects of our project. This was a mindset our company had from the beginning and stayed true to throughout our design process.

Drainage Design
- Designed curbs and road crowning to channel runoff.
- Provided a total of four catch basins along the Bronson Blvd. (see Fig.3)
- Evaluated with a 100-yr, 24-hr storm surge.

Lighting and Utility Design
- Designed for the lighting requirements of the neighborhood.
- Evaluated both high pressure sodium vapor (HPS) and light emitting diode (LED) luminaires. (see Fig. 2)
- Considered moving existing utility lines underground; found to be too costly and less sustainable.

Lighting Alternative Analysis

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Pavement Design
- Designed both rigid pavement (PCC) and flexible pavement (HMA)
- Used Nomographs to determine the depths and structural numbers.

Pavement Alternative Analysis

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Haluk Aktan, Ph.D. P.E. | James Baker, P.E. | Decker Hains, Ph.D. P.E