

**ATTACHMENT A**  
**Requirements for**  
**Transportation Elements**

**I. OVERVIEW**

The Newark Park Commission (NPC or Owner) seeks to expand and enhance the trail system in and around the City of Newark (the City), Delaware. The objective of the Pomeroy Branch Rail to Trail Project is to greatly improve the mobility of pedestrians and bicyclists throughout the City. With the addition of the Pomeroy Branch Rail to Trail there will be impacts to the City's Transportation network that will require improvements.

Specifically, the Owner requests:

- ❑ Preliminary design for the reconstruction of the Five-Points Intersection of Cleveland Avenue, Chapel Street and Margaret Street
- ❑ Preliminary design (Joint Transportation-Civil) of a multiple-user trail design.
- ❑ Preliminary design (Joint Transportation-Civil) of a combination Transit Station Facility for (UD/DART/Newark/Owner)
- ❑ Preliminary Construction plans to support Transportation, Civil, Environmental, and Structural disciplines.

All transportation elements shall be designed in accordance with all applicable City of Newark, DelDOT, and AASHTO standards.

**II. SCOPE OF SERVICES**

The following project elements shall be part of the Transportation consulting engineer's services:

- A. Preliminary design for the reconstruction of the Five-Points Intersection of Cleveland Avenue, Chapel Street and Margaret Street

As part of the proposed multi-use trail project, the Owner requests the redesign of the Five-Points Intersection of Cleveland Avenue, Chapel Street and Margaret Street. The owner would like to eliminate the Margaret Street leg of the intersection. The goal is to redesign the intersection to improve the overall operation of the proposed intersection while allowing for safe vehicular, bicycle and pedestrian passage of the intersection and users of the proposed trail. Evaluate the effects of eliminating Margaret Street on the transportation network and identify if an additional signal is warranted at Paper Mill Road and Creek View Road.

The Preliminary design for the reconstruction of the Five-Points Intersection of Cleveland Avenue, Chapel Street and Margaret Street includes the preparation of the following deliverables:

1. Conceptual design for the reconstruction of the Five-Points Intersection of Cleveland Avenue, Chapel Street and Margaret Street

For the owner's progress meeting, prepare a conceptual design (25%) which:

- Identifies the project needs and requirements of the Owner.
- Demonstrates the identification of utility, right of way, environmental, landscaping, and economic existing constraints within the project area.
- Demonstrates how the transportation design elements will blend seamlessly with the surrounding University, residential, business and project surroundings of the project area.
- Provides recommendations to the owner on the scope of the required utility investigations for the existing and proposed Transportation, Civil, Environmental, and Structural elements of the project.
- Discusses how the intersection will be constructed while minimizing impact to the existing transportation network, including the surrounding University, residential, and business stakeholders.
- Identifies and documents applicable codes and manuals to illustrate project elements will be designed in accordance with applicable standards.
- **DELIVERABLE:** A report shall accompany the intersection plan to identify and discuss the items listed above. This report is to be approximately three (3) pages in length.

2. Preliminary design for the reconstruction of the Five-Points Intersection of Cleveland Avenue, Chapel Street and Margaret Street

Prepare a Preliminary Design of Intersection (50%) which:

- Demonstrates economy, durability, maintainability and constructability of the materials and design elements that you have proposed.
- Summarizes geometric design criteria, including horizontal and vertical alignment.
- Details signal phasing, signal timing, and location of signal or mast arm poles and signal heads.
- Details location of civil, environmental, and structural project elements. (This requires close coordination with the other disciplines.)
- Details utility impacts.
- Details how the intersection will be constructed while minimizing impact to the existing transportation network, including the surrounding University, residential, and business stakeholders.
- Provides detailed preliminary estimate of probable construction cost.

- Provides detailed construction schedule.
- Identifies and documents applicable codes and manuals to illustrate project elements have been designed in accordance with industry standard.
- Ensure all plans, reports and calculations have been back-checked and initialed by a “designer” and a “checker”.
- **DELIVERABLE:** A Preliminary Engineering Report shall accompany the intersection plan to identify and discuss the items listed above. This report is to be approximately five (5) pages in length.

B. Preliminary design (Joint Transportation-Civil) of a multiple-user trail design.

As part of the of a multiple-user trail design, the Owner requests the design of approximately one mile of trail and roadway crossings from Delaware Avenue across Main Street to Cleveland Avenue terminating at Creek Road. In close coordination with the civil, environmental, and structural members of your firm, prepare the Preliminary Design (50%) of the proposed trail.

The Preliminary design (Joint Transportation-Civil) of a multiple-user trail design includes the preparation of the following deliverables:

1. Conceptual Design of multiple-user trail and road crossings

For the owner’s progress meeting, prepare a conceptual design (25%) which:

- Identifies the project needs and requirements of the Owner.
- Provides conceptual design of horizontal and vertical alignment of trail.
- Demonstrates the identification of utility, right of way, environmental, landscaping, and economic existing constraints within the project area.
- Provides recommendations to the owner on the scope of the required utility investigations for the existing and proposed Transportation, Civil, Environmental, and Structural elements of the project.
- Discusses how the trail and crossings will be constructed.
- Identifies and documents applicable codes and manuals to illustrate project elements will be designed in accordance with industry standard.
- **DELIVERABLE:** A report shall accompany the trail and crossing plans to identify and discuss the items listed above. The report is to be approximately three (3) pages in length.

2. Preliminary Design of multiple-user trail and road crossings

Prepare a Preliminary Design of multiple-user trail and road crossings (50%) which:

- Demonstrates economy, durability, maintainability and constructability of the materials and design elements that you have proposed.
- Provides preliminary design of horizontal and vertical alignment of trail.

- Summarizes geometric design criteria, including horizontal and vertical alignment.
- Details location of civil, environmental, and structural project elements. (This requires close coordination with the other disciplines.)
- Details utility impacts.
- Details how the trail and intersection crossings will be constructed while minimizing impact to the existing transportation network, including the surrounding University, residential, and business stakeholders.
- Provides detailed preliminary estimate of probable construction cost.
- Provides detailed construction schedule.
- Identifies and documents applicable codes and manuals to illustrate project elements have been designed in accordance with industry standard.
- Ensure all plans, reports and calculations have been back-checked and initialed by a “designer” and a “checker”.
- **DELIVERABLE:** A Preliminary Engineering Report shall accompany the trail and crossing plans to identify and discuss the items listed above. The report is to be approximately five (5) pages in length.

C. Preliminary design (Joint Transportation-Civil) of a combination Transit Station Facility for (UD/DART/Newark/Owner)

Since the new bicycle and pedestrian trail will promote multimodal transportation to the central business district of Newark, a Transit Station Facility is proposed between Delaware Avenue and Main Street. A new parking area is required. A minimum 24 spaces shall be provided. Additionally, this area shall serve as a new transit station for (UD/DART and Newark) and shall provide a partially enclosed structure for waiting multi-modal transients.

Preliminary design (Joint Transportation-Civil) of a combination Transit Station Facility for (UD/DART/Newark/Owner) includes the preparation of the following deliverables:

1. Conceptual Design of Transit Station Facility

For the owner’s progress meeting, prepare a conceptual design (25%) which:

- Identifies the project needs and requirements of the Owner.
- Provides conceptual design of the Transit Station, access to Delaware Avenue and Main Street, parking facility, and accommodations for pedestrians and bicyclists.
- Demonstrates the identification of utility, right of way, environmental, landscaping, and economic existing constraints within the project area.
- Provides recommendations to the owner on the scope of the required utility investigations for the existing and proposed Transportation, Civil, Environmental, and Structural elements of the project.

- Identifies and documents applicable codes and manuals to illustrate project elements will be designed in accordance with industry standard.
- **DELIVERABLE:** A report shall accompany the conceptual design of the Transit Station Facility to identify and discuss the items listed above. The report is to be approximately three (3) pages in length.

## 2. Preliminary Design of Transit Station Facility

Prepare a Preliminary Design of the Transit Station Facility (50%) which:

- Demonstrates economy, durability, maintainability and constructability of the materials and design elements that you have proposed.
- Provides preliminary design of the Transit Station
- Details location of civil, environmental, and structural project elements. (This requires close coordination with the other disciplines.)
- Details utility impacts.
- Details how the Transit Station will be constructed while minimizing impact to the existing transportation network, including the surrounding University, residential, and business stakeholders.
- Provides detailed preliminary estimate of probable construction cost.
- Provides detailed construction schedule.
- Identifies and documents applicable codes and manuals to illustrate project elements have been designed in accordance with industry standard.
- Ensure all plans, reports and calculations have been back-checked and initialed by a “designer” and a “checker”.
- **DELIVERABLE:** A Preliminary Engineering Report shall accompany the preliminary design of the Transit Station Facility to identify and discuss the items listed above. The report is to be approximately five (5) pages in length.

## D. Transportation Discipline - Individual Technical Assignment

Each team member shall complete an individual technical assignment that will be distributed during the second class.