City of Washington Wellness Park

Submitted to:
City of Washington

Submitted By:
G5 Engineering, Inc.

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Executive Summary

We have provided design plans for a wellness park that the city of Washington would like to construct. Our firm has come up with three different design approaches for this park. The first design was modified from the original concept layout provided to our firm by Confluence. This plan has included all the originally planned locations of the fields, YMCA facility, and various structures in the park. The city of Washington wanted us to design for the possible addition of a water tower to the area. Therefore, for our second design alternative, our company has incorporated a design layout with a water tower constructed on the eastern side of the property. Since there is the possibility the YMCA will not be built, our third design alternative has excluded the YMCA facility from the grounds. This design will also allow for an additional field to be constructed in place of where the YMCA facility would have been located on the southeastern side of the property.

These three designs were designed with respect to current specifications and standards as specified through AASHTO, Iowa DOT, and other various design standards. All playing fields were designed using standard field dimensions. There were many constraints dictated by the project scope. These constraints vary between physical construction space, time, design standards, social impacts, public input, and the use of green materials.

Major challenges have affected our design approach. Problems in lack of information, size of tournaments, complexities in field drainage, and space restrictions were all major challenges that affected our designs in a major way. Even with these challenges, G5 Engineering's in-depth knowledge of civil engineering has allowed them to provide the city of Washington with 30% design alternatives. As engineers, we were fully cognizant of the potentially unanticipated outcomes and quantified these impacts in this report.

Through the work that has been completed by G5 Engineering, we have successfully completed the tasks that were proposed in the RFP. The three designs have been developed and are presented in sheets 3 – 5. Each design took into account criteria provided by the client and successfully satisfied their requirements with designs that include multiple different sports, the possibility for a water tower on site as well as a YMCA. Details of the road design, trail design, foundation designs, as well the grading plan are all included. A basic building performance analysis was also conducted on the YMCA as an additional design consideration to the client. It also displays the potential for sustainable design, which was very important to our firm starting the project. A 3D rendering of the park was created to represent the work completed. Based off of our first design, costs were gathered and the expected total cost of the park is $7,500,000. The addition of a wellness park complex will be the major attraction of the area, and will positively serve the community for years to come.

Introduction

In 2012, the City of Washington adopted a Comprehensive Plan developed by RDG Planning and Design, Inc. The plan called for the location of a wellness park that would provide space for organized recreation. In addition to the recreation fields, the city also desired an access road, walking trail, required ancillary structures such as a concession stand, a pedestrian bridge, location and design of a new YMCA facility, and location of a new water tower.

G5 Engineering is a design firm that has been fully committed to this project since it was awarded in January. Our team was tasked with developing three different concept plans for a wellness park for the City of Washington, Iowa. A specific plan was followed over the course of about five months by G5 Engineering. A 3D model and animation of the park were generated in order to really convey the potential of what the City of Washington can do with this undeveloped land.

Problem Statement

The design of the wellness park has abided by three different designs and included all of the necessary engineering calculations and drafting. With the three different design alternatives, a grading plan, trail design, pedestrian bridge design, sketch plans of all ancillary structures, and site plan of the YMCA have been completed for the preferred alternative. Every decision and design created has coincided with the appropriate specifications and design standards, and have the best interest of the community in mind. This project, if constructed, will greatly improve the community and will enhance the space while attracting people from the surrounding areas.

Design Objectives

City officials stressed that the grading plan should have a terraced look to it, with different fields at different elevations. Our design has accomplished that look while maintaining the natural drainage pattern of the land.

A walking trail was designed to be eco and user friendly that would be able to serve the needs of the community. The walking trail was designed using porous material to decrease runoff and decrease overall maintenance costs of the park.

A preliminary design of the future YMCA facility was created in order to calculate the soils capacity to bear weight. This design was purposed to be used in accordance with the recommended shallow foundation type to aid in the final design of the YMCA facility following completion of the wellness park.

The pedestrian bridge and associated foundations was designed to serve for safe travel throughout the park, as well as to connect each of the different athletic complexes. This pedestrian bridge will aid as one of the most prominent structures in the park, and will add to the aesthetic qualities and overall appearance of the park. The bridge will span the park's roadway so appropriate design will be necessary in order to prevent any loading that could cause failure leading to fracture of any of the bridge or support components.

The street system was designed as a fundamental element of the wellness park design. The street was designed to control traffic flow, determine the ease of pedestrian and bicyclist movement, orientate the user, and create a framework into which fields and other amenities are placed. The function of the road is not to move traffic as fast as possible, but rather to move traffic at low speeds and encourage bicycling and walking. The road will accommodate bicycling and walking and use them as a traffic calming method.

Approaches

There were many different approaches that were taken and were governed by the various tasks. The earthwork computations were completed using the grid method, other techniques were considered, but based on the information given and the overall size of the land the grid method was the most viable solution. Grids were developed over the project boundary and calculations were made based on the difference between the new and existing elevations.

The walking trail cross section was designed based on specifications provided in the Iowa Department of Transportation's *Iowa Trails 2000* (Chapter 4, Section 3). Materials for the walking trail are to be constructed following Iowa Department of Transportation design standards, specifically Section 2109, Section 4121, Section 4122, and Section 4143. These sections can be found in Appendix 1.1.

The YMCA, along with SVPA Architects Inc. and Carl A. Nelson and & Co., conducting a "Programming Phase" meeting. This meeting generated a list of what the YMCA wanted in the new building, along with the proposed square footage requested for the specific area. A copy of the Programming Phase list was acquired from Carl A. Nelson & Co. and can be found in Appendix 1.8. The list was used to generate sketch layout of the new YMCA.

In the design of the park's pedestrian bridge, the AASHTO LRFD Bridge Design Specifications were used in order to determine the geometry of the bridge's steel box girder support system. The *LRFD Bridge Design* book was also used to determine the appropriate geometry of the support footings and abutments. The ADA Act was consulted to ensure the availability of use of the bridge to all patrons with disabilities. The steel girder support system of the bridge was designed in accordance with AISC standards of measurement presented in the

AISC Steel Manual. Iowa DOT standards from the Office of Bridges and Structures were consulted with the specific design aspects of the bridge as well.

The approach taken for the preliminary design of the YMCA foundation was to apply Terzaghi's Bearing Capacity Theory on a strip foundation to calculate both the ultimate bearing capacity and the allowable bearing capacity of the soil. In order to satisfy Terzaghi's theory, the depth of the foundation needed to be less than its width, under this condition the foundation is considered to be shallow. The Equation to calculate ultimate bearing capacity for a strip foundation was taken from *Das, Braja M (2013).* Additionally, the existing soil-type information was collected from previous soil surveys and used to find specific soil properties from the *Geotechdata.info* databases.

The road cross section was designed based on the specifications provided in *A Policy on Geometric Design of Highways and Streets, 6th Edition*. Also used was the *Asphalt Paving Design Guide* provided by that Asphalt Paving Association of Iowa and HMA Pavement Mix Type Selection Guide provided by the Federal Highway Administration. Specific sections can be found in Appendix 1.3.

For construction of this project to begin, permits from the City of Washington, Washington County, and Iowa Department of Natural Resources are required. The construction of the wellness park will require the Zoning and Building Permit (City of Washington), Signage Permit (City of Washington), Street Excavation Permit (City of Washington), Conditional Use Permit (City of Washington and Washington County), Right of Entry Permit (FEMA), and Pollutant Discharge Permit (EPA). For construction of all ancillary structures, including the YMCA, the Building Permit, Plumbing Permit (if applicable), Electrical Permit, and the Mechanical Permit (if applicable) will be required. Requirements for all said permits will be

discussed further in Section 5: Final Design Details. Copies of the permit applications listed can be found in Appendix 1.6.

Constraints

There are numerous constraints that came along with the design of the park. Project constraints include amount of space, time, design requirements and standards, social impacts, public input, and resource constraints. The amount of space was a major constraint to the engineers at G5 Engineering designing the park layout. A total area of 45.4 acres governs the park, of that total, 4.9 acres of that was be devoted to the YMCA structure. To assure that this constraint was met, the exact aerial topography boundaries provided by the city of Washington were used as accurately as possible in the design of the park. The design criteria was a challenging constraint that was followed to ensure that the entire park design corresponds with current standards and specifications of the corresponding Department of Transportation, AASHTO LRFD Bridge Design, etc. Social impacts were treated as a difficult constraint to abide by. The appropriate considerations relevant to social impacts were taken into account because the wellness park will be needed to serve the entire community, as well as to serve as an aesthetically pleasing feature for the city. The design focused on the social impact and how to maximize efficiency, aesthetics, and overall quality to ensure that the space served the community in the most effective and positive manner possible. It should be noted that whenever financially feasible, eco-friendly designs were used in the construction of the park. For example, low energy use structures or permeable pavement parking lots were implemented into the park. The resources needed to construct these eco-friendly structures could prove as a problematic constraint because it could cause significant delays in their construction. It could also prove difficult to acquire or afford the materials necessary for the eco-friendly structures.

The limiting constraints on the park's bridge begin with its pre-determined location. Immediately placing the bridge in its current northern location eliminated all possibility for alternative location selection, which could have possibly reduced the bridge's construction costs, space requirement, and ease of use to the whole park. This constraint would be considered soft due to its ability to be ignored if absolutely necessary. If there was an unforeseen environmental condition that would not allow the bridge to be constructed in its designated place, then the design must be altered for the bridge to be relocated to an area that ensures the bridge safe construction and operation. Available space and budget can be seen as a singular constraint in the case of the pedestrian bridge. This combined constraint of budget and space availability permits only one pedestrian bridge in the Wellness Park. Clearly the park would benefit with multiple bridges linking each specific area of the park together, but due to the mentioned constraints, such a bridge system is not feasible. This constraint combination is hard, the space for development and project budget cannot be altered. The impacts of this hard constraint were discussed and the original selection for a singular bridge was confirmed to be the best option for the project. A final constraint placed on the bridge design is constructability. If the selected design of the bridge is too complex and would cause significantly greater difficulty to construct than the other alternatives, that design will not be used. A second aspect of the constructability is the determination of the construction length of the bridge to ensure that there is no conflict with the other aspects of the project. The constructability of the bridge would be categorized as hard, and the bridge design would take this hard constraint into consideration when selecting which design will most appropriately fit the park's needs.

Constraints associated with the earthwork included being bound by the project boundaries which presented a challenge because of the large scale area. Another constraint placed was to reduce the amount of surplus in order to lower construction costs.

Challenges

Each aspect of the project presented its own challenges. The earthwork brought upon the challenge of reducing the amount of earth that would have to be moved off site as well as satisfy the clients desire to have terraced fields, which requires grave amounts of cut and fill to the various locations. It took multiple grading designs to reduce this amount of surplus material and still satisfy the terracing of the fields, while taking drainage considerations into account.
The Americans with Disabilities Act (ADA) officially became a law on July 26, 1990. The law ensures equal access and opportunity for all people with disabilities in the United States. Abiding by these laws and making land grading as well as all sidewalks, trails, buildings, and roads in the wellness park ADA acceptable was a major challenge that was met.

The most obvious challenge for the pedestrian bridge design are the aesthetic qualities of the structure. The bridge itself will be one of, if not the most prominent feature in the park and therefore a desirable design will be required. This being said, the design of the bridge must also remain consistent with the existing landscape of the park. The challenge here presents itself in determining what type of budget will be acceptable for the extra aesthetic design of the bridge. For the foundation design, much earthwork measurements and design is required. Due to limited equipment and resources, the necessary tests to determine the exact values for the soil material properties were unobtainable. As mentioned earlier, the bridge grade must be designed in accordance with ADA compliant ramping to ensure that the bridge is not unsafe or inaccessible for anyone who may attend the park. The span of the pedestrian bridge crosses the

roadway through the park, with a two lane road there is no space available for a centrally located column that would aid in the support of the bridge. This required an alteration in the design of the bridge.

Societal Impacts

The Washington Wellness Park will have a resilient societal impact on the city, its surrounding communities, and even the nearby counties in Iowa. Washington's Wellness Park will be a standout attraction and will directly impact business of the area. This park will help the local economy because it will generate revenue for the city. The multiple advertising opportunities on the various fields in the park will generate revenue and give local businesses a chance to promote their goods and services. The park will be located less than half a mile from Central Park, which currently acts a main hub for residents traveling around. Among the numerous rewards the park will bring the city, it will also provide returns to surrounding communities by providing a location for local tournaments, practices, and games on high quality fields with upscale amenities and features. Our nation's local parks and recreational locations are the gateways to healthy, prosperous, and connected communities.

Communities and their residents are continuously being positively affected through parks and recreation. Whether they are taking a walk on a trail, competing in a soccer game, or just reaping the benefits of clean air and water available because of the spacious land, the local community benefits positively. Local parks take on some of our nation's toughest challenges like obesity, the economy, and environmental sustainability. Not everybody can afford a membership to a club or a gym and the next best option is arguably a park to exercise and enjoy. Washington's Wellness Park will enrich the quality of life of all users by providing enjoyable and constructive leisure opportunities. The park will also contribute to physical, social,

emotional and intellectual development as well as strengthen community ties by bringing people together.

The park will provide countless opportunities for youth development. It will offer a spot for kids to be safe and active. Arguably, the economy and environment will be the biggest beneficiaries if the park is constructed. It has been shown in studies that urban land located next to a green belt has significantly greater value. This is because the park acts as a catalyst for business development and keeps the neighborhood a desirable place to live and do business. Also, the wellness park will stimulate tourism activity by generating money for the city by allowing it to host tournaments, practices, and games. Regarding the YMCA facility, studies have found that health care prices are lower for members of a health club compared to those who are not. A study done by Union Pacific found that 80% of their workers said that exercise programs made them feel more productive at work and throughout their daily tasks. On the environmental side, parks help conserve plants and trees, provide a valuable contribution towards pollution control because they mitigate water, air and noise pollution. The new park will provide better drainage for the massive area. Even though not everyone will use the park, the majority of those that do not still perceive substantial benefit from them.

As an addition to the project, a basic building performance analysis was completed on the YMCA facility using Autodesk Vasari. There are three different layouts that were analyzed with all of the adjustments occurring on the second level. Based off of the simulation there are various differences between the designs that need to be considered and it shows the potential to reduce the energy use of the facility. Buildings account for 40% of energy use worldwide, and with some simple design choices the energy impact of the building can be reduced. Comparing the three designs there are a couple of important values and tables that display the potential to

reduce energy use. Looking at appendix EUI (Energy Use Intensity) and the life cycle energy cost of the building are perhaps the two more important values to look at when considering design options. Design choice 3-1 has the lowest value of 140 kBtu/sq ft/yr meaning that is has the lowest energy impact among the three design choices, but over the lifespan of the building design choice 5 has the lowest lifecycle cost of $1,700,000. Another useful figure is the potential energy savings chart in Appendix 1.2. Based off of these it can be seen that the biggest potential for energy savings lies within the choice of windows used for the facility. With higher quality windows the energy savings potential increases by as much as 25%. It can also be seen that the highest potential for losses occur with roof insulation as well as wall insulation indicating that changes in the design have the potential to negatively impact the energy savings. There are numerous data charts to analyze, but the other important figure is the annual carbon emissions which judges how efficient the building is and the potential to reduce carbon emissions through green design, such as wind turbine potential and solar panels. Based off of this parameter the design that sets itself apart is design option 3-1 which has a net CO_2 of 680 tons/year. Other data to consider include the wind rose for the area which shows that the majority of wind originates from the South and Northwest (Appendix 1.2), knowing this information can allow for the architect to utilize the layout appropriately to maximize natural ventilation which reduces energy costs. Of course there are multiple parameters to consider, but this basic analysis gives insight to the possibilities of sustainable design. All of the relevant tables can be found in the appendix, with images of CFD analysis and the overall designs.

The walking trail was designed having a porous asphalt surface. Porous asphalt provides several societal, environmental, and economic impacts. In a measure of hardness done on pavement types, porous asphalt was approximately 20% softer than standard asphalt or

concrete. The use of a softer surface material can help reduce stress in trail users' joints. Several studies of water quality of been done on water that passes through porous systems and these systems have the capabilities of removing up to 95% of total suspended solids, 85% of total phosphorus, 85% of total nitrogen, 30% of nitrates (as N), and 98% of metals. Porous asphalt has also been found to reduce urban heat island effect and pavement temperature. The porous asphalt capabilities of runoff reduction, improvement of water quality, and urban heat island mitigation allow for up to three Sustainable Site credits. Compared to impervious surfaces, porous asphalt is easier and cheaper to maintain. The trail would require to be swept and vacuumed several times a year to remove debris that may inhibit infiltration. One of the benefits, is that the porous asphalt does a sufficient job at clearing itself of snow during the winter times, allowing for more time of use of the walking trail at reduced maintenance cost.

The terracing of the fields and overall layout of the land positively impacts society because of the level of aesthetics that it brings to the space. Instead of having all of the playing fields on one level, we were able to take advantage of the natural gradients of the land and create a space that can be explored and allow for the users to enjoy a space that is captivating to the eye.

The construction of the pedestrian bridge will have a profound impact on the overall safety of the park. By eliminating possibly dangerous traffic-pedestrian intersections, the risk of an accident between the two is all but eliminated. The elimination of these issues promotes a much more family-friendly atmosphere throughout the park and encourages people of all ages to attend and freely enjoy the facilities.

Other Categories

The design of the wellness park satisfied all services to be provided by G5 Engineering. However, utilities required for the wellness park were excluded. Several attempts were made to obtain utility information of the area, but ultimately could not be obtained within our contract time. Future utilities (electric, water, gas, and storm water) could not adequately be included in our final design. Further assessment of utilities will need to be done by the design team. In order to include an accurate cost of the project, the quantity of stormwater utilities were estimated using Iowa Department of Transportation Design Manual (4A-10). The space has been allocated southeast of the YMCA for the purpose of a future drainage basin to be designed by future engineers.

Preliminary Development of Alternative Solutions

To satisfy the client's needs three alternative designs were developed. The three designs incorporated possible additions to the space including a water tower as well as a YMCA. Considering that the implementation of the water tower and the relocation of the YMCA is not final, the alternative solutions included the addition of another soccer field to add the possibility of hosting tournament play. Another included the YMCA facility without the water tower, which allowed for the relocation of the basketball and tennis courts. The final design incorporated all possible additions to the space resulting in having the YMCA facility and the water tower on the land.

The walking trail was designed using porous asphalt as the surface material. Alternative design of the walking trail included using impervious materials for the surface. These materials would have been lower in cost, but would not provide as many benefits as porous asphalt provides.

The purpose of this bridge is to provide quick, safe passage over the main roadway in the park while connecting the baseball and soccer areas which lie on different sides of the road. This bridge will allow spectators to move freely throughout the major areas of the park without having to walk through the park's traffic. The advantages of this are seen in both more consistent, free traffic flow and a severely decreased risk of accidents with the pedestrians. The location of the pedestrian bridge was selected in order to optimize the functionality of the bridge, allowing easy access to the soccer and baseball complexes, both parking lot areas, the concession stand and restrooms, and the walking path. This design called for dimensions of a bridge deck, 10' width by 60' length. These dimensions allowed ample space for traffic on the bridge's deck while also spanning the two lane plus bike lane roadway beneath. For a pedestrian bridge with similar design to this, the standard thickness used on the concrete deck is 8". Alternatives for the pedestrian bridge design were seen mostly in the materials and configuration of the bridge. The initial assumption for the bridge design was a concrete deck supported by a concrete box girder system. Through initial research, possible alternative solutions included: a concrete deck bridge that used a steel box girder support system, a steel deck with steel girder support system, along with many possible aesthetic alternatives such as stone or wood used on the bridge's supports. The second aspect of the design was the foundation support for the bridge. Of the alternatives considered for the design, the three most seriously analyzed were spread footings, strip footings, and piled foundation supports. Design alternatives were also seen with the specific geometry of the spread footing and abutment designs that were selected. Other geometric arrangements would have also resulted in acceptable designs for the bridge.

Although a strip foundation was decided upon as the best choice for this particular project, a slab foundation was also considered for the YMCA. Although it is quicker and easier

to construct a slab foundation, freezing and thawing are a major concern to this foundation type. Because of the extreme weather conditions in the Midwest, it was decided that for a building as large as the YMCA, a slab foundation was not the best course of action. However, for the smaller single story facilities such as restrooms and concessions stands; a slab foundation would be acceptable.

To satisfy the clients wants the road splitting the wellness park in half was designed to move traffic safely and create a user friendly environment. Different mixes and thicknesses can be chosen as alternatives however prices and longevity will negatively correlate. There are many green approaches this road could take part in. Some ideas include stormwater trees, stormwater trenches, stormwater planters and permeable pavement. A center median could be used to help calm traffic. A wider paved shoulder for bicyclists is another accommodation that could be made. Complete streets encourage health through walking and biking, create a sense of place, and improve social interaction. Complete streets also improve safety and have a positive effect on the environment. The complete and green street are two great alternatives that are gaining popularity and acceptance in communities like Washington and are great choices when considering the future.

Selection Process

Plan A was selected as the best option for and is represented below in Appendix 1.7. The selection criteria was based off of cost, overall land use, ascetics, recreational space, and benefit to the community. Plan A scored highest in all of these categories when compared against the other two options. Plans including the water town had a lower aesthetic value, however, Plan A made up for that low score in overall land use. Plan A by far scored the highest in the category of benefits to the community. This was because it supplied a new and updated recreational facility

on top of what the other options offered. Plan A scored slightly lower in recreational space due to the YMCA facility and water tower combination. This took up extra field space.

Final Design Details

The final earthwork calculations resulted in having to cut roughly 318,000 cu yds and 303,000 cu yds to fill, resulting in a surplus of 15,000 cu yds**.** With the terracing of the fields, we were able to reduce the amount of surplus by taking advantage of the current layout of the land. By having the YMCA facility at a higher elevation and creating a bowl like layout of the site allowed for the drainage of the site to flow to the wanted locations and avoid flooding of the area.

The drainage plans of the fields can be seen on sheets 16 and 17, these display the necessary slopes of the fields in order to drain properly and avoid oversaturated fields. The slopes are based off of typical standards and result in efficient drainage of the fields. The baseball field drainage ranges from ½% to 1% and can be seen on sheet 16. The soccer fields will have a slope of 2 % with the slope originating from the middle of the field to the sidelines as seen on sheet 17.

The walking trail was designed using standards and specifications from the Iowa Department of Transportation, Environmental Protection Agency, and followed porous asphalt projects done in Wisconsin and Minnesota. The subsurface components of the walking trail consists of a choke course, open-graded base/subbase, underdrain, nonwoven geotextile fabric, and subgrade. The subgrade of the walking trail follows Section 2109.03 from the Iowa Department of Transportation which states that the “have a width at least equal to that of proposed pavement or base, plus 2 feet.” A nonwoven geotextile fabric layer separates the subbase and subgrade layer. The nonwoven geotextile fabric is placed to prevent migration of

soil into the aggregate layer. The subbase was designed to consist of 33 inches of crushed aggregate that satisfies Section 4121 of the Iowa Department of Transportation. The base layer consists of 3 inches of crushed aggregate that satisfies Section 4122 of the Iowa Department of Transportation. A limestone screening layer of 3 inches is to lay above the base/subbase layer and extend up to the surface and serve as 2 foot shoulders. The surface of the walking trail consists of a 3 inch thick layer of porous asphalt. The current soil of the area has low infiltration rates (<0.2 inches per hour) and requires an underdrain system to assist in capturing runoff. The underdrain size and outlet is to be determined by the design engineer, but it must follow Section 4143.01 of Iowa Department of Transportation Standards..

In accordance to Iowa Department of Transportation *Iowa Trails 2000* (Chapter 4, Section 3), the trails will consist of a cross-slope or crowned slope (where needed) at 2%. In order to be considered an ADA accessible trail, the profile slope must not exceed the following slopes:

- 5% or less for any distance
- 8.3% for a maximum distance of 200 feet
- 10% for a maximum distance of 30 feet
- 12.5% for a maximum distance of 10 feet

The Iowa Department of Transportation also requires clearance, both vertical and horizontal, everywhere along the walking trail. Anywhere along the track there must be at least 8 feet and a horizontal clearance of 2 feet on both sides of the trail. Signage (as specified by the design engineer) placed along the trail must be at, a minimum, 3 feet from the edge of pavement. The trail cross sections and profiles can be seen on sheets 11 – 14.

A concession stand, maintenance shed, and park office were designed to service all the required needs for the wellness park and can be seen in sheet 20. Using the programming

generated by SVPA Architects Inc. and Carl A. Nelson & Co., a sketch layout was generated for the new YMCA to be located on the wellness park site. The YMCA is made up of a 40,000 sq-ft. first floor and 15,000 sq-ft. second floor. Key features of the YMCA include a competition sized pool and a suspended, indoor track that overlooks the basketball and multi-space court. The new YMCA will also include space for locker rooms, family pool, offices, child care, fitness classes, spinning classes, strength machines, cardio machines, and free weights. The sketch layout for both floors can be seen on sheets 9 and 10.

In order to functionally allow two-way pedestrian traffic and also span the roadway providing sufficient space for a two lanes with attached bike lanes, a bridge deck of 10' width by 60' length was utilized. The deck's 8" concrete surface thickness was chosen by using a standard for pedestrian bridges falling within the less than 100' span category. In order to support the live and dead loading of the bridge deck, a girder system was required. Due to the impossibility of a central support column, a steel box girder system is required. A designed box girder using four W30x116 steel beams in support of the deck arranged was designed in order to support the flexural and compression requirements of the bridge.

The bridge deck and steel support system will be constructed prefab and delivered to the site for installation upon the appropriate construction timing. All concrete used in construction of the bridge support system will be normal weight, cast in place concrete. The support system of the bridge deck consisted of two major pieces, a spread footing and a vertical abutment. The first aspect of the bridge support system was the spread footing supports. An initial design for the footing was a concrete 5' base, 10' length, and a 3' height. The 10' length of the footing must be equal to or greater than the width of the bridge deck in order to support the length of the abutment. The footing would be set at a standard depth of 4' below the ground's surface. The

abutment design of the bridge support system consists of a 2’ base 17.5’ high wall supporting the bridge deck. The abutment is placed a distance of 3” from the front of the footing in order to satisfy the eccentricity location requirement specified by the AASHTO LRFD Bridge Design Guide (Section 11.6). A cross-section design of the abutment and footing setup can be seen in sheets 18 and 19 and their calculations in appendix 1.4. The pictures to the prefabricated bridge options can be seen in Appendix 1.5.

Permits will be required for the construction of the wellness park. For each structure being built, a Building Permit from the City of Washington is required for construction. The application for the Building Permit requires approval of zoning, health department, fire department, soil reports, plumbing, electrical, and mechanical. The foundations, concrete slabs, framing, interior lathing, exterior lathing, and masonry must be also inspected and approved by an inspector. In order to obtain the Building Permit from the City of Washington, applications for Plumbing Permit, Electrical Permit, and Mechanical Permit must be obtained. The Plumbing Permit from the City of Washington requires the list all plumbing fixtures to be used and inspection of the plumbing to be done. The Electrical Permit from the City of Washington requires the total number of outlets, fixtures, and items that will be connected to electric (Dishwasher, space heater, ranges, etc). Inspection reports of the electric components is also required in the application of the permit. The Mechanical Permit from the City of Washington requires all mechanical equipment to be listed and inspection reports of all mechanical components. For proper signage to be placed in the area of the wellness park requires a Sign Permit from the City of Washington. To obtain the Sign permit, lot dimensions, total square feet of all signs visible from the public way, location of said signs, height of all signs, and type of construction materials must be supplied. In addition, whether the signs will have electrical

components or not must be stated. All signs must also follow Section 8 of Washington's Zoning Ordinance. To create the entrance to the park, a section of 5th Street will need to be excavated to create a smooth entrance. This excavation takes place within the City right-of-way therefore requires the Street Excavation Permit from the City of Washington. This work to be done must meet the satisfaction of the City Engineer (or his representative). The permit requires inspection of the size guidelines, placement, compaction, reinforcement, sealant, asphalt placement, a final inspection of the road, and a 2-year inspection. A Building & Zoning permit will also be required prior to construction. This permit requires site and construction information, architect or engineer information, contractor information, zoning administrator approval, other permits to be required for construction, and inspection of plumbing and electrical of proposed construction. A Conditional Use Permit will be required if applicable to construction of the wellness park if the construction does not comply with the city's zoning ordinance. The Conditional Use Permit application requires the location of conditional use and description of the conditional use. All applications required by the City of Washington and Washington County can be found in

The construction of the wellness park will disturb more than 1 acre of land. In order to comply with the Clean Water Act, Construction General Permit must be obtained from the Iowa Department of Natural Resources. To be covered under the permit, all requirements under the NPDES Stormwater Discharges from Construction Activities must be met. A Stormwater Pollution Prevention Plan (SWPP) must be developed prior to submitting the Notice of Intent. If pollutants are to be discharge during construction, a Notice of Intent must be submitted to the Department of Natural Resources. A copy of a Notice of Intent can be found in Appendix 1.6. The YMCA is responsible to obtain required permits from the DNR pertaining to the

construction of the new YMCA regarding air regulations (if applicable to the final design of the YMCA).

Cost and Construction Estimates

Based off values provided in the *RSMeans Construction Handbook*, the total amount for the earthwork was calculated to be around $2,000,000. The detailed calculations of this cost can be found in Appendix 1.1.

The porous asphalt walking trail was priced based on the ranges provided by the Wisconsin Department of Transportation, in a study done by CTC & Associates. The total cost includes the cost of excavation, porous asphalt, aggregate base, limestone screenings, and geotextile fabric. The underdrain was priced as 4 inch AASHTO M252 standard piping. The total cost was calculated to be $1,400,000 for construction of the walking trail. A detailed breakdown of the cost of construction can be found in Appendix 1.1.

The concrete bridge deck and steel girder support system will be constructed fall within the range of $600,000-$750,000 for prefabrication. This range was given by Excel Bridge Manufacturing Co. given the bridge's dimensioning and purpose. Due to the size of the bridge and the use of the steel box girder system, an estimate of $700,000 for the prefab construction of the bridge and support system. This price also includes the cost of construction of the columns and spread footing support system of the bridge foundations. In addition to this cost, the cost of installing such a bridge would be significant as well. This cost was estimated to be $350,000 due to transportation and installation of the bridge. The final aspect of the pedestrian bridge construction cost was the cast in place concrete that is used for the spread footings and abutment supports the bridge. Using information from the *RSMeans Concrete and Masonry* handbook, it was determined that the cost of these aspects will be around $40,000. These factors give the

bridge an overall cost of just over $1 million. The overall cost of the bridge, including the *RSMeans* calculations are available in the Cost Analysis section of the pedestrian bridge Appendix 1.4.

Although the relocation of the YMCA facility is not a direct part of the wellness park project; the estimated material cost of the building was calculated in order to give the client an idea of what it will cost once the entire area in question is developed. The goal of this information is to assist in the decision of whether or not it is cost effective to relocate the YMCA and whether not it would be more beneficial to utilize the space in question for alternate park facilities. Through the use of the *RSMeans* Square Foot Costs handbook of a two-story gymnasium, the estimated cost of the new YMCA came out to be roughly $4.6 million dollars. This number was estimated based on the square footage of the proposed facility's preliminary drawings.

For consulting services, G5 Engineering compiled a cost for consulting and is represented in Appendix 1.1. This was agreed upon when the client accepted our bid for the wellness park project.

Conclusions

A successful design of the wellness park for the City of Washington was successfully completed by G5 Engineering. This design incorporated the necessary engineering calculations and drafting mockups for the project. For the preferred alternative of the three possible designs, a grading plan, road cross section, trail design, pedestrian bridge design, sketch plans of all ancillary structures, and a site plan of the YMCA were completed. G5 Engineering designed every aspect of the park in the best interest of the city of Washington with future users in mind. Constraints such as amount of space, time, design requirements, social impacts, public input, and resource constraints were overcome to successfully complete this project. The wellness park the City of Washington desires is a once in a lifetime opportunity that would provide vital attractiveness to the community and is essential to its future growth.

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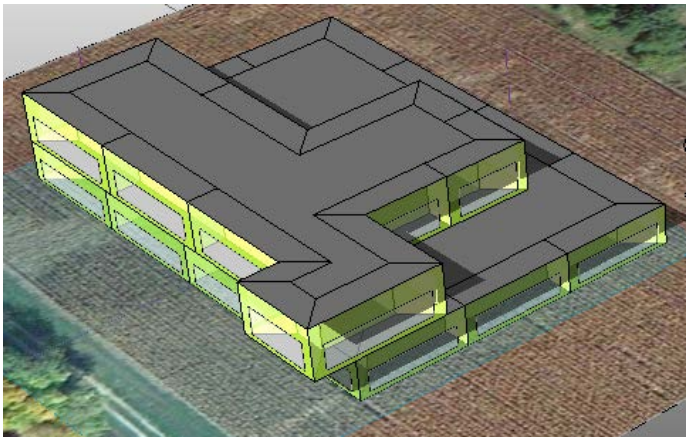
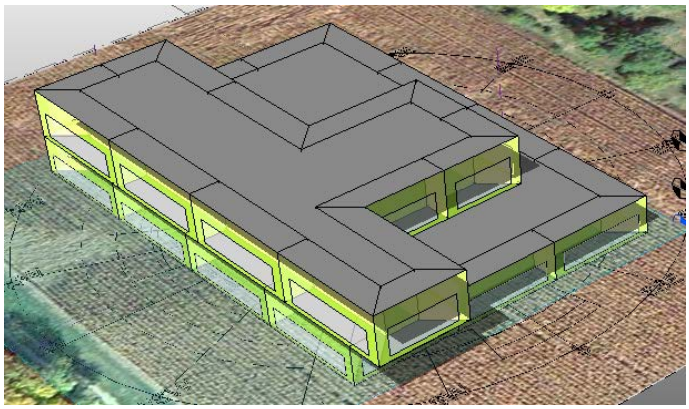
Appendix 1.0

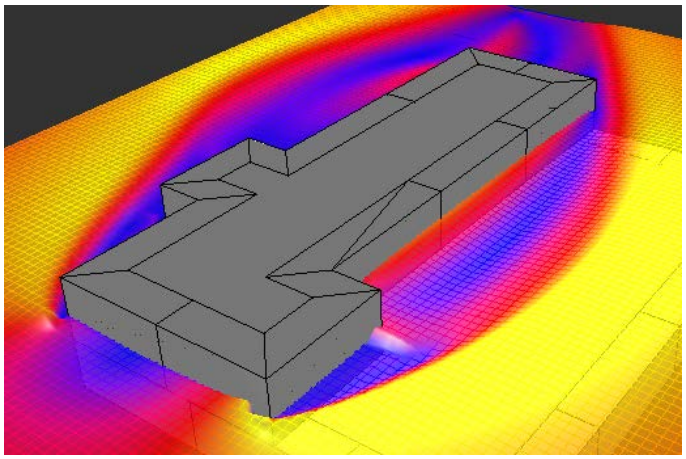


Design Option #4

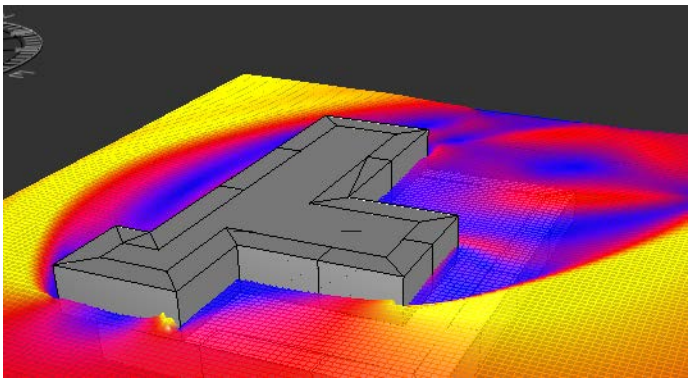


Design Option #3-1

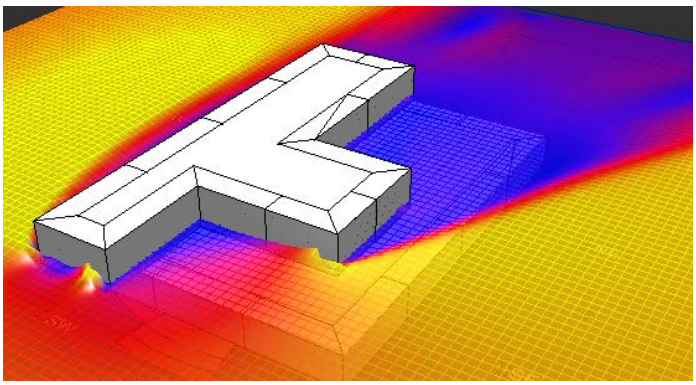
Design Option #5



CFD Design Analysis for Option #5



CFD Design Analysis for Option #4



CFD Design Analysis for Option #3-1

Appendix 1.1

Pay Item Number	Description	Unit	Total Quantity	Unit Price	Total
1	EARTH EXCAVATION	CU YD	13,508	$40	$540,324
2	TOPSOIL FURNISH AND PLACE, VARIABLE DEPTH	SQ YD	2,226	$2	$3,339
3	SUB-BASE GRANULAR MATERIAL, TYPE B, 6"	SQ YD	12,234	$7	$80,743
4	BITUMINOUS MATERIALS (PRIME COAT)	GAL	10,000	$2	$15,000
5	HOT-MIX ASPHALT BINDER COURSE, IL-19, N50	TON	8,094	$75	$607,050
6	HOT-MIX ASPHALT SURFACE COURSE, MIX "D", N50	TON	3,084	$80	$246,720
7	STORM SEWER, 6" PVC SDR 26	FOOT	4,044	$40	$161,742
8	STORM SEWER, 8" PVC SDR 26	FOOT	4,044	$50	$202,178
9	STORM SEWER, 10" PVC SDR 26	FOOT	4,044	$60	$242,613
10	PIPE UNDERDRAIN	FOOT	12,253	$26	$318,583
11	CATCH BASIN, TYPE A, 4' DIA	EACH	30	$1,900	$57,000
12	COMBINATION CURB AND GUTTER, TYPE B4.12	FOOT	12,253	$13	$162,355
13	TRAFFIC CONTROL AND PROTECTION	TOTAL	1	$50,000	$50,000
14	PARKING LOT STRIPPING	TOTAL	1	$2,500	$2,500
15	PVT MK LINES	TOTAL	1	$2,000	$2,000
16	TEMPORARY STONE	CU YD	1,500	$20	$30,000
Total Value of Work Completed =					**$2,722,147**
Total Value + Inflation and Corrections at 10% =					**$2,994,362**

Road and Parking Lot Cost

	Machine	Rate	Expected Cost
Excavation	Scraper	3.49	$ 1,109,691
	Dozer	4.71	$ 1,497,606
	Scrap Towed	6.1	$ 1,939,574
	Elev. Scraper	3.27	$ 1,039,739
Fill	Front Load	10	
Compaction	SheepsFoot	0.45	$ 136,250
	Towed Sheep	0.53	$ 160,472
Hauling	16.5 1 mile	2.83	$ 42,974
	16.5 2 mile	3.52	$ 53,452
Backfill	105 HP	2.71	$ 820,528
		Total=	**$2,039,491**

Earthwork Cost

Item	Unit	Cost per unit	Quantity	Cost
Excavation	cu yd.	$ 8.00	3980	$ 31,840
Porous Asphalt	sq ft.	$ 0.85	116173	$ 98,747
Base/Subbase	cu yd.	$ 30.00	38724	$ 1,161,728
Geotextile Fabric	sq ft.	$ 0.70	116173	$ 81,321
Limestone Screenings	cu yd.	$ 26.00	1225	$ 31,850
Underdrain	100 ft	$ 70.00	97	$ 6,777
			Total	**$ 1,412,263**
			Per sq ft.	**$ 12**

Trail Cost

Item	Unit	Cost Per Uint	Quantity	Cost
PreFab Concrete Deck Steel Box Grider Bride	1	$ 700,000	1	$ 700,000
Bridge Installation	1	$ 350,000	1	$ 350,000
Footing/Abutment Cast in Place Concrete	1	$ 40,000	1	$ 40,000
			Total =	**$1,090,000**

Pedestrian Bridge Cost

Billable Hours

Bidder Organization Name: G5 Engineering														
Task Description		Brandon Saccone		Edgar Nunez		Mike Jambrone		Matt Felicelli		Mitchell Horras		Michael Hepner		Task Hours
Task 1: Develop a grading plan, layout, and 3D model				25		32								57.0
Task 2: Recommend cross-sections and materials		25						5		5		5		40.0
Task 3: Locate and design pedestrain bridge								25						25.0
Task 4: Complete designs of ancially structures		15						18.5		20		10		63.5
Task 5: Generate building design and specifications of YMCA facility										10.5		15		25.5
Task 6: Complete site plan for YMCA facility				10		5						10		25.0
Task 7: Environmental impact analysis of YMCA										6				6.0
Task 8: Develop three conceptual improvement alternatives				5		5								10.0
Task 9: Develop advantages and disadvantages for each proposed solution		2		2		2		2		2		2		12.0
Task 10: Develop evaluation matrix												1		1.0
Task 11: Develop priority listing of projects		1		1		1		1		1		1		6.0
Task 12: Conduct concept review meeting with City Staff		1		1		1		1		1		1		6.0
Task 13: Present Substantial Plan conponents to the Department and City		1		1		1		1		1		1		6.0
Task 14: Revise draft Substantial Plan		15		15		15		15		15		15		90.0
Task 15: Submit final proposal to city		1		1		1		1		1		1		6.0
TOTAL BILLABLE HOURS		61	0	61	0	63	0	69.5	0	62.5	0	62	0	379.0

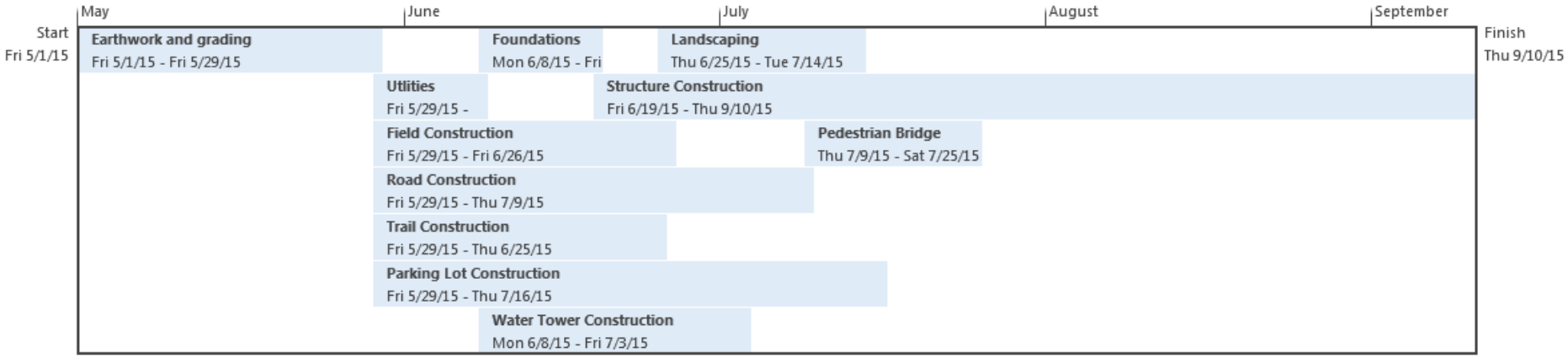
Description	Unit Cost	Quantity	Total Cost
Strip Foundation	$ 21.70	811.93	$ 17,619
Basketball Court	$ 35,000.00	1.50	$ 52,500
Swimming Pool	$204,000.00	1.00	$ 204,000
Family Pool	$100,000.00	1.00	$ 100,000
Whirlpool	$ 15,000.00	1.00	$ 15,000
Bleachers	$ 10,696.00	4.00	$ 42,784
Exterior Walls	$ 13.40	40719.60	$ 545,643
Exterior Doors	$ 1,984.00	3.00	$ 5,952
Interior Walls	$ 65.00	1401.29	$ 91,084
Interior Doors	$ 1,194.00	24.00	$ 28,656
Stairs	$ 6.00	5300.00	$ 31,800
Roof construction	$ 17.79	39759.40	$ 707,320
Scoreboard	$ 5,500.00	3.00	$ 16,500
Basketball Courts	$ 4,700.00	3.00	$ 14,100
Lockers	$ 153.00	24.00	$ 3,672
Toilets	$ 4,228.00	12.00	$ 50,736
Floor	$ 5.11	61320.00	$ 313,345
Ceiling	$ 6.86	39759.40	$ 272,750
Domestic Water Distribution	$ 4.02	61320.00	$ 246,506
Windows	$ 521.00	36.00	$ 18,756
Terminal & Package Units	$ 10.75	61320.00	$ 659,190
Sprinklers	$ 3.64	61320.00	$ 223,205
Standpipe	$ 0.95	61320.00	$ 58,254
Electrical Service & Distribution	$ 1.07	61320.00	$ 65,612
Lighting & Branch Wiring	$ 9.34	61320.00	$ 572,729
Communications & Security	$ 2.83	61320.00	$ 173,536
Other Equipment	$ 6.38	5049.00	$ 32,213
		Total=	**$ 4,563,460.70**

YMCA Cost

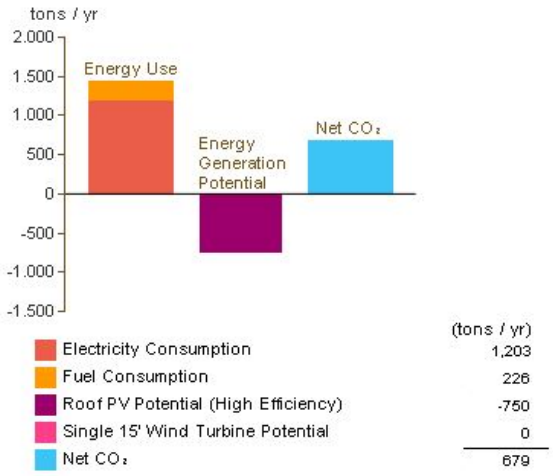
Overall Budget Summary				
		Task Hours	Cost*	Percent of Total
	Direct Labor Categories			
Task 1	Develop a location and grading plan	57	$ 1,973.08	13%
Task 2	Recommend cross sections and materials	40	$ 1,500.00	10%
Task 3	Locate and design a pedestrian bridge	25	$ 1,442.31	9%
Task 4	Complete designs of ancillary structures	63.5	$ 2,428.85	15%
Task 5	Generate bulding design and specifications of YMCA facility	25.5	$ 1,228.85	8%
Task 6	Complete sight plan and sketch for YMCA facility	25	$ 1,096.15	7%
Task7	Environmental impact analysis of YMCA facility	6	$ 207.69	1%
Task 8	Develop 3 conceptual improvement alternatives	10	$ 346.15	2%
Task 9	Develop the advantages/disadvantages of each proposed solution	12	$ 461.54	3%
Task 10	Develop an evaluation matrix	1	$ 57.69	0%
Task 11	Develop priority listing of projects	6	$ 230.77	1%
Task 12	Conduct a concept review meeting with City Staff	6	$ 230.77	1%
Task 13	Present Substantial Plan components to the Department and City	6	$ 230.77	1%
Task 14	Revise DRAFT Substantial Plan	90	$ 3,461.54	22%
Task 15	Submit the FINAL Proposal report to the Department and City	6	$ 807.69	5%
		TOTAL DIRECT COSTS	$ 15,703.85	
		Total Indirect Costs	$ 13,302.55	
		Sub-total	$ 29,006.40	
		Profit margin	15%	
		OVERALL DESIGN COST	$ 33,357.36	

Final Consulting Costs

Construction Timeline



Appendix 1.2



Design Option 3-1 Annual Carbon Emissions

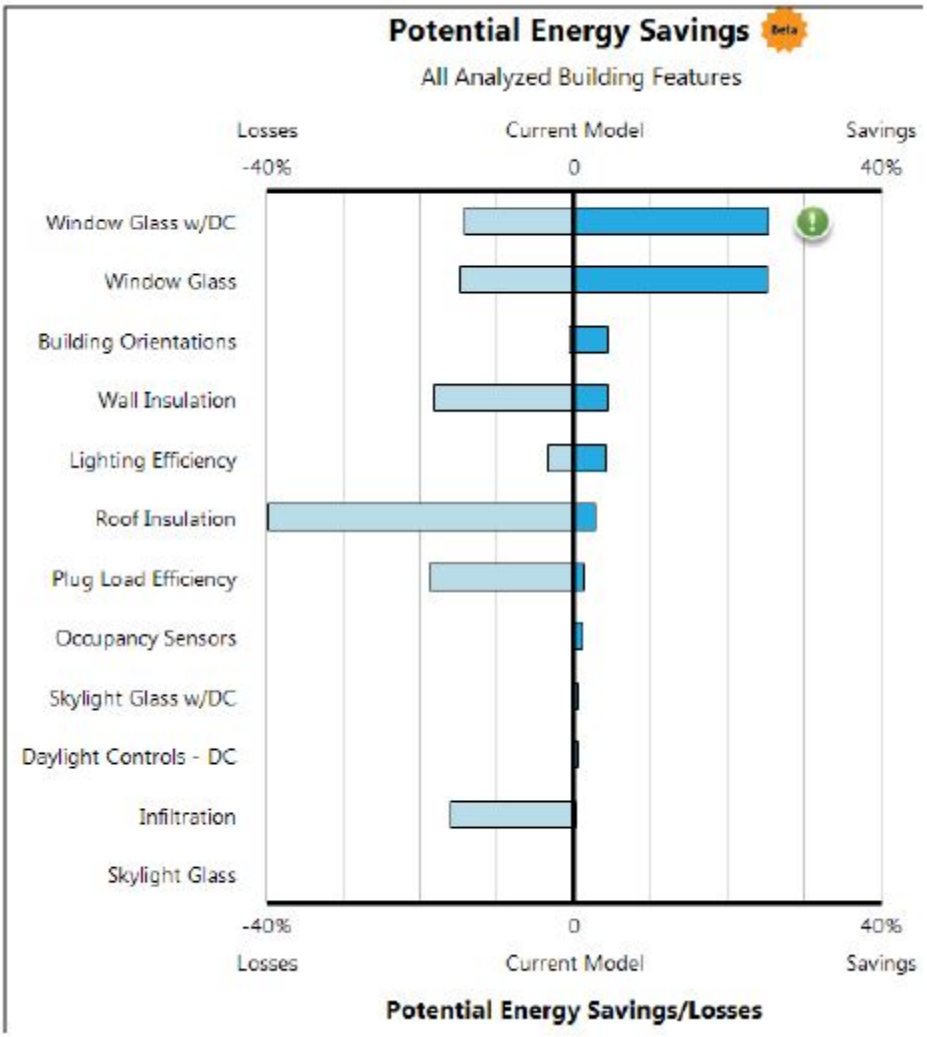
Electricity EUI:	22 kWh / sf / yr
Fuel EUI:	64 kBtu / sf / yr
Total EUI:	139 kBtu / sf / yr

Design Option 3-1 EUI

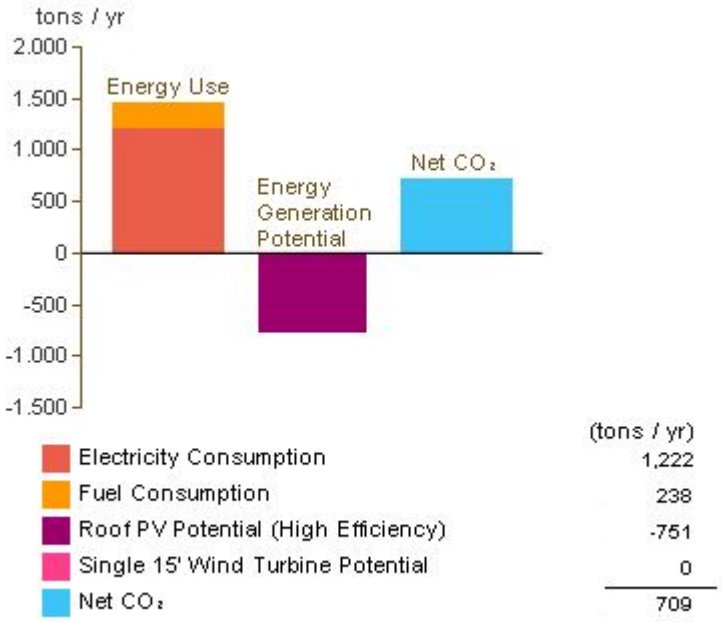
Life Cycle Electricity Use:	40,150,110 kWh
Life Cycle Fuel Use:	1,172,884 Therms
Life Cycle Energy Cost:	$1,713,501

*30-year life and 6.1% discount rate for costs

Design Option 3-1 Life Cycle Cost



Design Option 3-1 Potential Energy Savings



Design Option 4 Annual Carbon Emissions

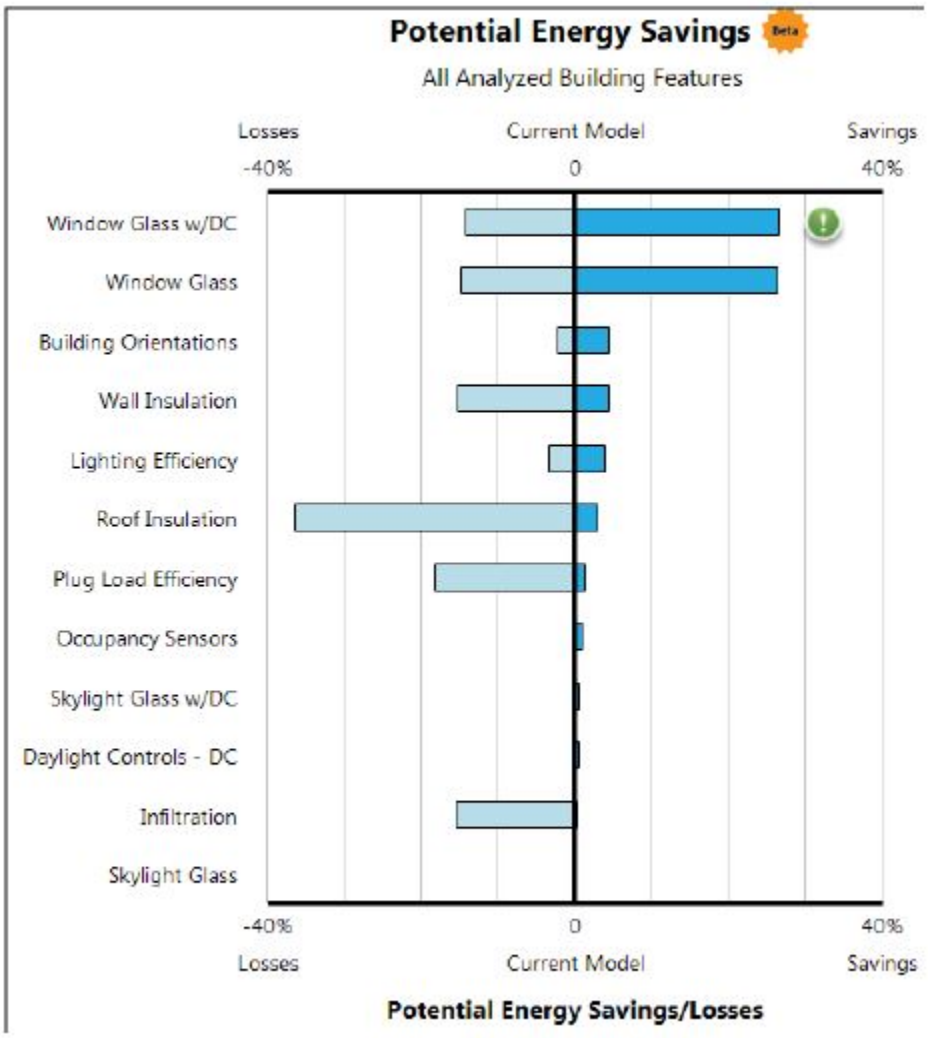
Electricity EUI:	22 kWh / sf / yr
Fuel EUI:	68 kBtu / sf / yr
Total EUI:	144 kBtu / sf / yr

Design Option 4 EUI

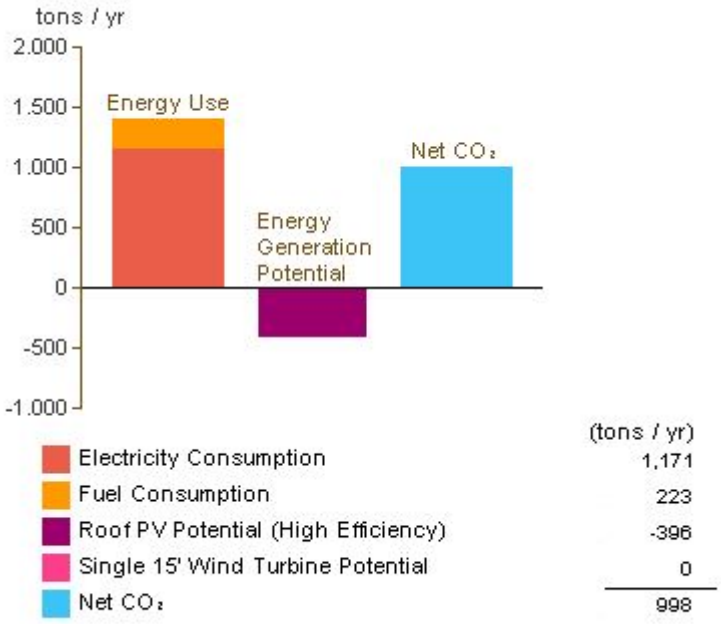
Life Cycle Electricity Use:	40,772,670 kWh
Life Cycle Fuel Use:	1,233,047 Therms
Life Cycle Energy Cost:	$1,754,163

*30-year life and 6.1% discount rate for costs

Design Option 4 Life Cycle Cost



Design Option 4 Potential Savings



Design Option 5 Annual Carbon Emissions

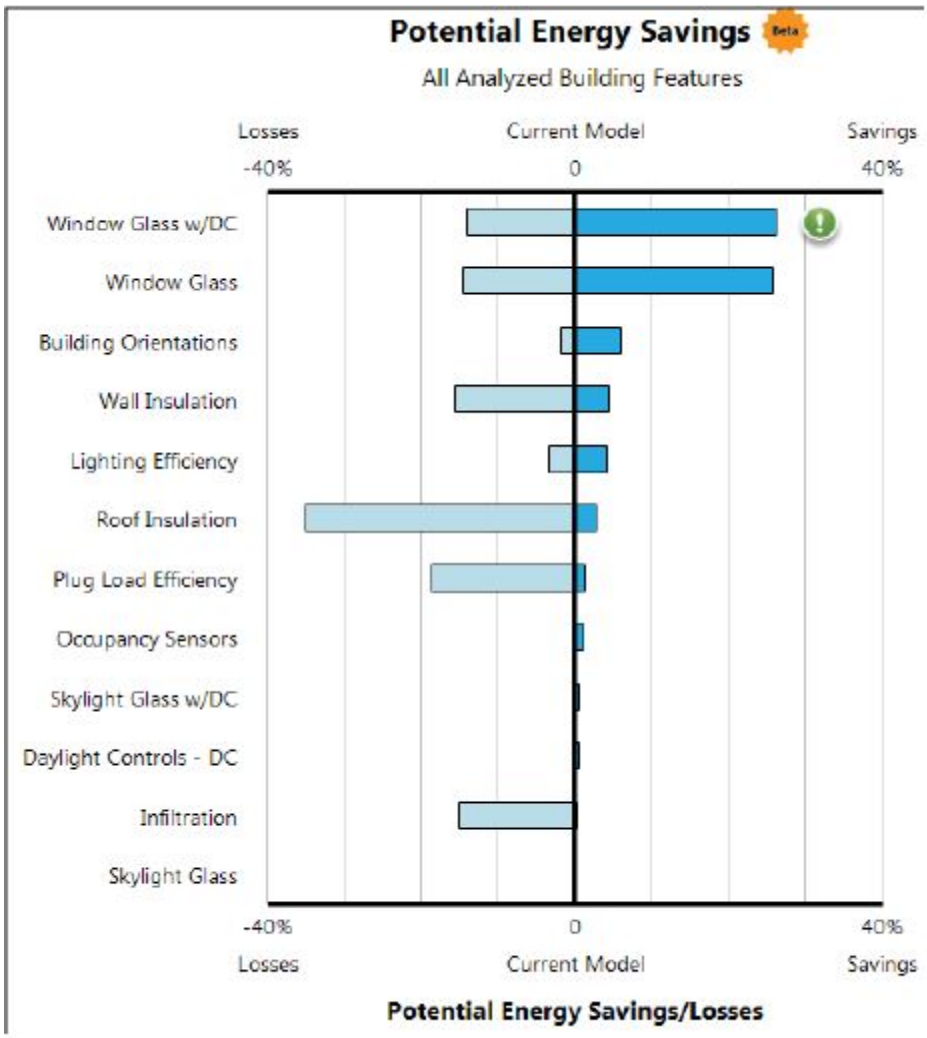
Electricity EUI:	22 kWh / sf / yr
Fuel EUI:	66 kBtu / sf / yr
Total EUI:	142 kBtu / sf / yr

Design Option 5 EUI

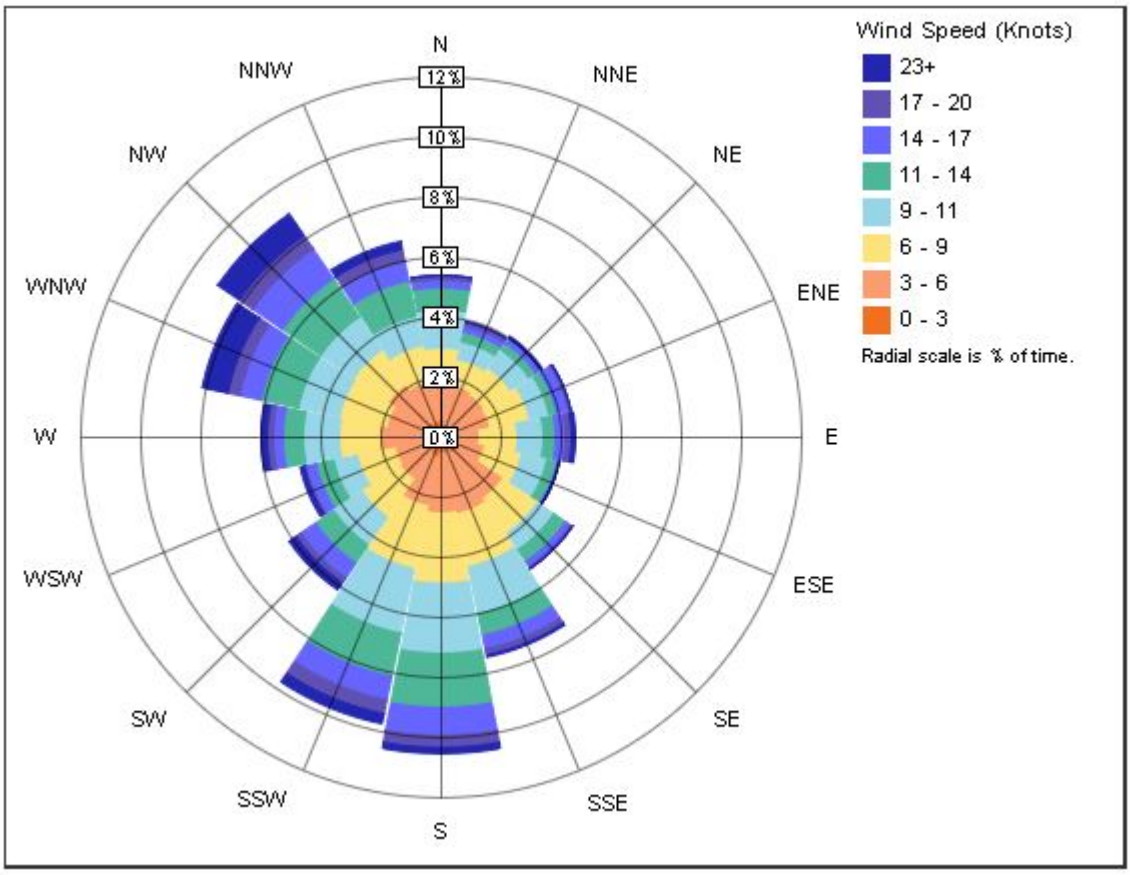
Life Cycle Electricity Use:	39,079,170 kWh
Life Cycle Fuel Use:	1,155,552 Therms
Life Cycle Energy Cost:	$1,672,480

*30-year life and 6.1% discount rate for costs

Design Option 5 Life Cycle Costs



Design Option 5 Potential Savings



Wind Rose for Washington, Iowa

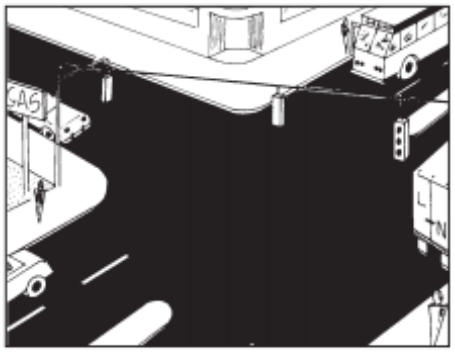
Appendix 1.3

Arterial Streets

Arterial streets provide the highest operating speeds and the highest levels of traffic service. They serve the major corridors of traffic and are usually multiple lane in urban areas. They are typically high-volume facilities that connect major activity centers.

As with the design of residential and collector facilities, many localities have adopted standards for the design and construction of arterials. All applicable local and state codes, standards, and specifications should be complied with when designing and constructing these facilities. The information contained in this Design Guide should augment local guidelines in assuring the proper planning and design of arterials.

Although arterials frequently carry very large traffic volumes and heavy truck traffic,



pavement designs recommended herein are applicable only to facilities having a low percentage of truck traffic. Design of Asphalt Concrete pavements for trucking highways requires considerable expertise and detailed analysis.

Table 4-3. Thickness Design: Arterial Streets

Design Criteria*			Thickness in Inches Asphalt Concrete		
Traffic Class (ADT)	Subgrade Class	CBR	Base	Surface	Total
IV (1,501-4,500 ADT)	Good	9	5.5	2.0	7.5
	Moderate	6	6.5	2.0	8.5
	Poor	3	7.5	2.0	9.5
V (6,001-9,500 ADT)	Good	9	7.5	2.5	10.0
	Moderate	6	8.0	3.0	11.0
	Poor	3	9.0	3.0	12.0
VI (9,501 & Above ADT)	Good	9	Special design consideration needed. Refer to a more complete design procedure.		
	Moderate	6			
	Poor	3			

**See chapter 3 for traffic and soil class details*

Residential Streets

The primary function of residential streets is to provide access to abutting property. This classification consists of the largest portion of the street and road network and provides the linkage to connect to higher types of facilities. Motorists' speeds may be low, or higher, depending on the standards to which the specific facility is designed.

Most trips on residential streets are short, and traffic volumes are low. Truck traffic is usually limited to vehicles that provide residential services such as trash pickup, moving vans, heating oil delivery, etc.

Table 4-1. Thickness Design: Residential Streets

A. For Asphalt Concrete Base Pavements					
Design Criteria*			Thickness in Inches Asphalt Concrete		
Traffic Class (ADT)	Subgrade Class	CBR	Base	Surface	Total
II (50-200 ADT)	Good	9	4.0	1.0	5.0
	Moderate	6	5.0	1.0	6.0
	Poor	3	5.5	1.5	7.0
III (201-700 ADT)	Good	9	4.0	1.5	5.5
	Moderate	6	5.0	1.5	6.5
	Poor	3	6.0	1.5	7.5

B. For Untreated Aggregate Base Pavements						
Design Criteria*			Thickness in Inches			
Traffic Class (ADT)	Subgrade Class	CBR	Untreated Aggregate Base	Asphalt Concrete Base	Asphalt Concrete Surface	Total
II (50-200 ADT)	Good	9	5.0	.0	3.0	8.0
	Moderate	6	8.0	.0	3.0	11.0
	Poor	3	8.0	2.0	2.0	12.0
III (201-700 ADT)	Good	9	7.0	.0	3.0	10.0
	Moderate	6	8.0	2.0	2.0	12.0
	Poor	3	8.0	3.0	2.0	13.0

**See chapter 3 for traffic and soil class details*

PAVEMENT THICKNESS DESIGN TABLES

Future traffic assignments can be rather nebulous and are subject to many external influences. Some areas see no growth over a design period. Therefore, common practice is to group categories of traffic into classes. Similarly, it has been found that, based on a local knowledge, soil-supporting values can be grouped into classifications of poor, moderate, and good. These classifications (see Chapter 3) provide an opportunity to use pavement thickness design tables rather than more detailed formula procedures. These tables have been prepared by experts in the industry to simplify the process for engineers, technicians, and architects who prepare a pavement design.

Design Procedure

Tables 4-1 through 4-5 can be used directly to select design thicknesses from the design input factors. In order to use the tables, appropriate traffic and subgrade classes must be selected as follows.

Traffic

The design procedure separates traffic into six classes (I through VI). Each class is defined by the number of autos per day, the average daily number of heavy trucks expected on the facility during the design period, and the type of street or highway. Traffic classifications are presented in Chapter 3. The pavement thicknesses given in the tables of this and the following chapter are based on the average daily traffic (ADT) values over a 20-year design period. Heavy trucks are described as two-axle, six-tire vehicles or larger.

Soils

It is desirable to have laboratory tests on the subgrade soil. However, if tests are not available, a design may be based on careful field examinations by an engineer. Soils may be classified as good, moderate, or poor or by a CBR value. Soil classifications are presented in Chapter 3. If a soil CBR value lies between those given in the classifications, the lower classification is used.

Design Steps

The following steps can be used to determine a pavement thickness.

1. From the known average daily traffic, determine the total number of trucks over the design period. Using this information, select the traffic classifications (Class I through VI) from Chapter 3.

2. Select a subgrade class (good, moderate, or poor) from Chapter 3 using soil data from the project. If no soil information is known, use the poor classification for the subgrade.

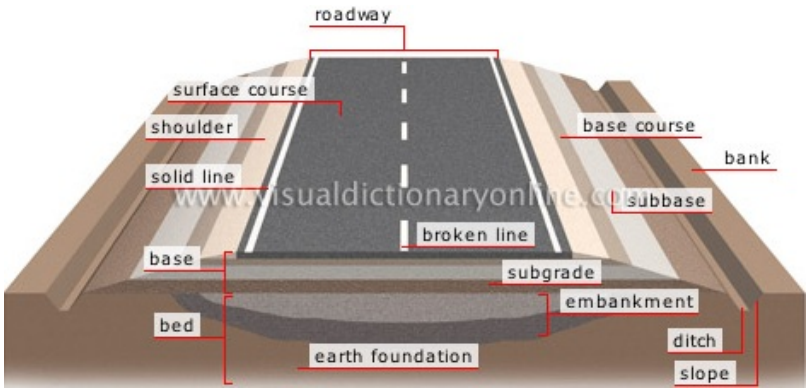
3. Select a design thickness from Tables 4-1 through 4-5 using the selected traffic class and subgrade class.

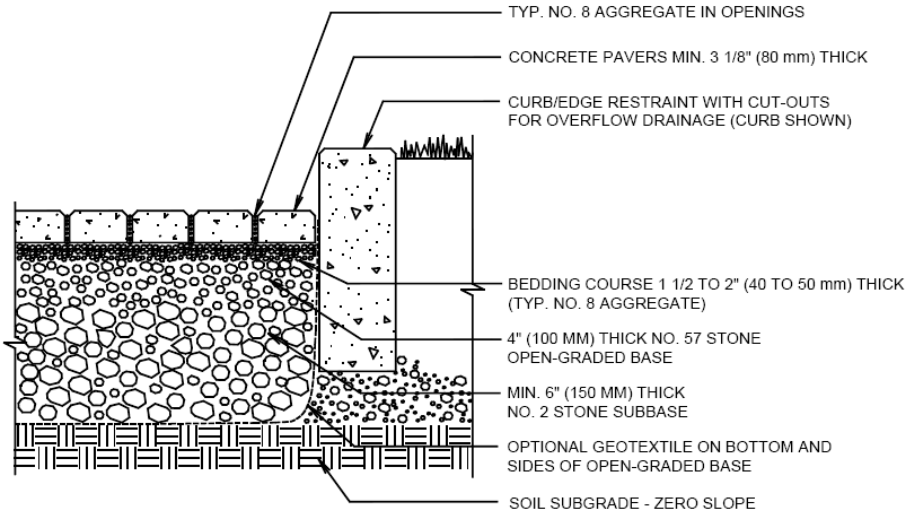
Design Example

- A collector street is estimated to carry 500 vehicles and 20 trucks a day. Traffic class III is selected using Chapter 3.

- No soil data is known, so the engineer selects the poor soil classification.

- The total design thickness selected from Table 4-2 is 7-1/2 inches. The base course is 6 inches, and the surface course is 1-1/2 inches.


roadway
surface course
shoulder
solid line
base course
bank
subbase
broken line
base
subgrade
embankment
bed
earth foundation
ditch
slope


TYP. NO. 8 AGGREGATE IN OPENINGS
CONCRETE PAVERS MIN. 3 1/8" (80 mm) THICK
CURB/EDGE RESTRAINT WITH CUT-OUTS
FOR OVERFLOW DRAINAGE (CURB SHOWN)
BEDDING COURSE 1 1/2 TO 2" (40 TO 50 mm) THICK
(TYP. NO. 8 AGGREGATE)
4" (100 MM) THICK NO. 57 STONE
OPEN-GRADED BASE
MIN. 6" (150 MM) THICK
NO. 2 STONE SUBBASE
OPTIONAL GEOTEXTILE ON BOTTOM AND
SIDES OF OPEN-GRADED BASE
SOIL SUBGRADE - ZERO SLOPE

HOT-MIX ASPHALT - Mix Selection

DISTRICT ONE - HOT-MIX ASPHALT SURFACE TREATMENTS (ENGLISH)

ADT	PAY CODE NO	PAY ITEM DESCRIPTION	UNIT	MIX TYPE	PERCENT AIR VOIDS @ Ndes	Lift Thickness	Unit Weight Lbs/SqYd/in	Notes
		Surface Course						
0 - 6000	40603310	HOT-MIX ASPHALT SURFACE COURSE, MIX "C", N50	TON	IL 9.5 mm	4% @ 50 Gyr.	1-1/2"	112	1, 8
6000 - 10,000	40603335	HOT-MIX ASPHALT SURFACE COURSE, MIX "D", N50	TON	IL 9.5 mm	4% @ 50 Gyr.	1-1/2"	112	1, 5
10,000 - 26,000	40603340	HOT-MIX ASPHALT SURFACE COURSE, MIX "D", N70	TON	IL 9.5 mm	4% @ 70 Gyr.	1-1/2"	112	1, 5
26,000 - 100,000	40603595	POLYMERIZED HOT-MIX ASPHALT SURFACE COURSE, MIX "F", N90	TON	IL 9.5 mm	4% @ 90 Gyr.	1-3/4"	112	1
100,000 +	X4066580	POLYMERIZED HOT-MIX ASPHALT SURFACE COURSE, **STONE MATRIX ASPHALT**, N80	TON		3.5% @ 80 Gyr.	2"	112	1, 11
		Binder Course						
0 - 10,000	40603080	HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N50	TON		4% @ 50 Gyr.	2-1/4" Min.	112	2, 6, 8
10,000 - 26,000	40603085	HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N70	TON		4% @ 70 Gyr.	2-1/4" Min.	112	2, 6
26,000 - 100,000	40603240	POLYMERIZED HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N90	TON		4% @ 90 Gyr.	2-1/4" Min.	112	2
100,000 +	X4066685	POLYMERIZED HOT-MIX ASPHALT BINDER COURSE, **STONE MATRIX ASPHALT**, N80	TON		3.5% @ 80 Gyr.	2"	112	2, 11
		Leveling Binder						
Over 300 Tons								
All	40600826	POLYMERIZED LEVELING BINDER (MACHINE METHOD), IL-4.75, N50	TON		4% @ 50 Gyr.	3/4" - 1"	110	3, 7, 9
< 300 Tons								
0 - 10,000	40600625	LEVELING BINDER (MACHINE METHOD), N50	TON	IL 9.5 mm	4% @ 50 Gyr.	3/4" - 2 1/4"	112	3, 8, 9, 10
10,000 +	40600635	LEVELING BINDER (MACHINE METHOD), N70	TON	IL 9.5 mm	4% @ 70 Gyr.	3/4" - 2 1/4"	112	3, 10
0 - 10,000	40600525	LEVELING BINDER (HAND METHOD), N50	TON	IL 9.5 mm	4% @ 50 Gyr.	3/4" - 2 1/4"	112	4, 8, 10
10,000 +	40600535	LEVELING BINDER (HAND METHOD), N70	TON	IL 9.5 mm	4% @ 70 Gyr.	3/4" - 2 1/4"	112	4, 10

Notes:

1. a) Add the following note: "The unit weight used to calculate all Hot-Mix Asphalt Surface Mixtures is 112 Lbs/SqYd/in".
   b) For reconstruction or new construction, use 2" Surface Course for Full-Depth AC Pavement - see **Example Cross Section** ["3. Full Depth Pavement" Tab]
   c) If resurfacing of a Bridge is part of a larger roadway resurfacing use the same mixture as the roadway on the bridge.
   If there are only Bridge Repairs with no roadway resurfacing (Typ. < 250 Tons) use "Waterproofing Membrane System" with the following surface mix:

40603335	HOT-MIX ASPHALT SURFACE COURSE, MIX "D", N50	TON	IL 9.5 mm	4% @ 50 Gyr.

2. Used instead of Leveling Binder when the total resurfacing thickness is greater than or equal to 3-3/4" (w/ Mix "C" or "D") or 4" (w/ Mix "F")
3. Refer to one of these cases: a) If overlaying bare concrete pavement and using Mix "F" then Leveling Binder thickness will be 3/4" thick
   b) If overlaying bare concrete pavement and using Mix "C" or "D" then Leveling Binder thickness will be 1" thick
   c) If overlaying HMA pavement and using Mix "C", "D" or "F" then Leveling Binder thickness will be 3/4" thick
4. Used in small areas that may not be reached with a Paving Machine
5. Use "Mix F, N90" if **MU Truck ADTT** > 800 and location is signalized or 4-way stop; i.e. High Stress Intersection or large volume of trucks such as a Weigh Station
6. Use "Polymerized Binder, IL-19, N 90" if **MU Truck ADTT** > 800 and location is signalized or 4-way stop; i.e. High Stress Intersection or large volume of tracks such as a Weigh Station
7. Use with **District 1** Special Provision "Hot-Mix Asphalt IL 4.75". Do **NOT** use Pay Item for "Strip Reflective Crack Control".
8. **Local Agency** may use surface and binder N30 L (Low ESAL) for ADT<700 and 10% trucks or less (3% Air Voids @ 30 Gyr.)
9. Designer Options:
   A. For high ADT use Mixture IL-4.75.
   B. For intersection use Mixture IL-4.75.
   C. For superelevation correction use Leveling Binder.
   D. **Local Agency** may use either Leveling Binder or the IL-4.75 Mixture
   E. Do NOT use 4.75 mm Mix on any temporary roads or pavements
10. Use with Pay Item for "Strip Reflective Crack Control".
11. See Bureau of Materials for a Case by Case Selection for use of **SMA** on Arterial Roadways

HOT-MIX ASPHALT - Mix Selection

DISTRICT ONE - HOT-MIX ASPHALT SPECIALTY TREATMENTS (ENGLISH)

OPERATIONS	LOCATION	PAY CODE NO	PAY ITEM DESCRIPTION	UNIT	PERCENT AIR VOIDS @ %des	Lift Thickness	MIX TYPE	Notes
PATCHING	NON-INTERSTATE	4420____	CLASS D PATCHES, Of TYPE and THICKNESS specified	SQ YD	4% @ 70 Gyr.	2-1/4" Min.	CLASS D PATCH (HMA BINDER IL-19 mm)	
	INTERSTATE	4420____	CLASS D PATCHES, Of TYPE and THICKNESS specified	SQ YD	4% @ 105 Gyr.	3" Min.	CLASS D PATCH (HMA BINDER IL-25 mm)	
	ALL	40601005	HOT-MIX ASPHALT REPLACEMENT OVER PATCHES	TON	4% @ 70 Gyr.	2-1/4" Min.	HMA REPLACEMENT OVER PATCHES (HMA BINDER IL-19 mm)	
SHOULDER RESURFACING	NON-INTERSTATE		BINDER - SAME AS OVERLAY	TON	BINDER PROPERTIES - SAME AS OVERLAY		BINDER MIX TYPE - SAME AS OVERLAY	
			SURFACE - SAME AS OVERLAY	TON	SURFACE PROPERTIES - SAME AS OVERLAY		SURFACE MIX TYPE - SAME AS OVERLAY	
	INTERSTATE	40603085	HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N70	TON	4% @ 70 Gyr.	2-1/4" Min.	HMA BINDER COURSE, IL 19.0, N70	
		40603340	HOT-MIX ASPHALT SURFACE COURSE, MIX "D", N70	TON	4% @ 70 Gyr.	1-1/2"	HMA SURFACE COURSE, MIX "D", N70 (IL 9.5 mm)	
SHOULDER RECON	NON-INTERSTATE	48203____	HOT-MIX ASPHALT SHOULDER, and specify THICKNESS	SQ YD	2% @ 30 Gyr.	2-1/4" Min.	HMA SHOULDER (HMA BINDER IL-19 mm)	
	INTERSTATE	48203____	HOT-MIX ASPHALT SHOULDER, and specify THICKNESS	SQ YD	4% @ 70 Gyr.	2-1/4" Min.	HMA SHOULDER (HMA BINDER IL-19 mm)	
			SURFACE - SAME AS OVERLAY	TON	SURFACE PROPERTIES - SAME AS OVERLAY		SURFACE MIX TYPE - SAME AS OVERLAY	
DRIVEWAY	P.E. & C.E.	35501____	HOT-MIX ASPHALT BASE COURSE, and specify THICKNESS	SQ YD	4% @ 50 Gyr.	2-1/4" Min.	HMA BASE COURSE (HMA BINDER IL-19 mm)	
		40603310	HOT-MIX ASPHALT SURFACE COURSE, MIX "C", N50	TON	4% @ 50 Gyr.	2"	HMA SURFACE COURSE, MIX "C", N50 (IL 9.5 mm)	
BASE CSE & BASE CSE WIDENING	ALL	35501____	HOT-MIX ASPHALT BASE COURSE, and specify THICKNESS	SQ YD	4% @ XX Gyr.	2-1/4" Min.	HMA BASE COURSE (HMA BINDER IL-19 mm)	3
		35600____	HOT-MIX ASPHALT BASE COURSE WIDENING, and specify THICKNESS	SQ YD	4% @ XX Gyr.	2-1/4" Min.	HMA BASE COURSE WIDENING (HMA BINDER IL-19 mm)	3
TEMPORARY ROAD	NON-INTERSTATE	X0712400	TEMPORARY PAVEMENT (Thickness shown on Plans)	SQ YD	4% @ 50 Gyr.	2-1/4" Min.	TEMP PAVEMENT (HMA BINDER IL-19 mm)	1, 2
					4% @ 50 Gyr	1-1/2"	HMA SURFACE COURSE, MIX "D", N50 (IL 9.5 mm)	1, 2
	INTERSTATE	X0325085	TEMPORARY PAVEMENT (INTERSTATE) (Thickness shown on Plans)	SQ YD	4% @ 70 Gyr	2-1/4" Min.	TEMP PVMT (INTERSTATE) (HMA BINDER IL-19 mm)	1, 2
					4% @ 70 Gyr	1-1/2"	HMA SURFACE COURSE, MIX "D", N70 (IL 9.5 mm)	1, 2
MEDIAN SURFACE/ BIKEWAY	MEDIAN SURFACE/ BIKEWAY	40603310	HOT-MIX ASPHALT SURFACE COURSE, MIX "C", N50	TON	4% @ 50 Gyr.	2"	HMA SURFACE COURSE, MIX "C", N50 (IL 9.5 mm)	
STABILIZED SUBBASE	AS SPECIFIED	31200____	STABILIZED SUB-BASE-HOT-MIX ASPHALT and specify THICKNESS	SQ YD	2% @ 30 Gyr.	4 1/2"	STABILIZED SUBBASE HMA, SAM [Used for Rural Jointed PCC and 20-Year CRC Pavement Design]	
		31200____	STABILIZED SUB-BASE-HOT-MIX ASPHALT and specify THICKNESS	SQ YD	*	4 1/2"	STABILIZED SUBBASE HMA (IL-19 mm) [For Extended Life (30 or 40-Year) CRC Pavement Design] * SEE SPECIAL PROVISION	

HOT-MIX ASPHALT - Mix Selection

DISTRICT ONE - HOT-MIX ASPHALT SURFACE TREATMENTS (METRIC)

ADT	PAY CODE NO	PAY ITEM DESCRIPTION	UNIT	MIX TYPE	PERCENT AIR VOIDS @ Ndes	Lift Thickness	Unit Weight Kg/m²/mm	Notes
Surface Course								
0 - 5000	M4063310	HOT-MIX ASPHALT SURFACE COURSE, MIX "C", N50	M TON	IL 9.5 mm	4% @ 50 Gyr.	38 mm	2.4	1, 5
5000 - 10,000	M4063335	HOT-MIX ASPHALT SURFACE COURSE, MIX "D", N50	M TON	IL 9.5 mm	4% @ 50 Gyr.	38 mm	2.4	1, 5
10,000 - 25,000	M4063340	HOT-MIX ASPHALT SURFACE COURSE, MIX "D", N70	M TON	IL 9.5 mm	4% @ 70 Gyr.	38 mm	2.4	1, 5
25,000 - 100,000	M4063595	POLYMERIZED HOT-MIX ASPHALT SURFACE COURSE, MIX "F", N90	M TON	IL 9.5 mm	4% @ 90 Gyr.	45 mm	2.4	1
100,000 +	MX406437	POLYMERIZED HOT-MIX ASPHALT SURFACE COURSE, STONE MATRIX ASPHALT, N80	M TON		3.5% @ 80 Gyr.	51 mm	2.4	1, 11
Binder Course								
0 - 10,000	M4063080	HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N50	M TON		4% @ 50 Gyr.	57 mm min.	2.4	2, 6, 8
10,000 - 25,000	M4063085	HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N70	M TON		4% @ 70 Gyr.	57 mm min.	2.4	2, 8
25,000 - 100,000	M4063240	POLYMERIZED HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N90	M TON		4% @ 90 Gyr.	57 mm min.	2.4	2
100,000 +	MX406435	POLYMERIZED HOT-MIX ASPHALT BINDER COURSE, STONE MATRIX ASPHALT, N80	M TON		3.5% @ 80 Gyr.	51 mm	2.4	2, 11
Leveling Binder								
Over 300 M Tons								
All	MX406772	POLYMERIZED LEVELING BINDER (MACHINE METHOD), IL-4.75, N50	M TON		4% @ 50 Gyr.	19 - 57 mm	2.36	3, 7, 9
< 300 M Tons								
0 - 10,000	M4062125	LEVELING BINDER (MACHINE METHOD), N50	M TON	IL 9.5 mm	4% @ 50 Gyr.	19 - 57 mm	2.4	3, 6, 9, 10
10,000 +	M4062135	LEVELING BINDER (MACHINE METHOD), N70	M TON	IL 9.5 mm	4% @ 70 Gyr.	19 - 57 mm	2.4	3, 10
0 - 10,000	M4062025	LEVELING BINDER (HAND METHOD), N50	M TON	IL 9.5 mm	4% @ 50 Gyr.	19 - 57 mm	2.4	4, 6, 10
10,000 +	M4062035	LEVELING BINDER (HAND METHOD), N70	M TON	IL 9.5 mm	4% @ 70 Gyr.	19 - 57 mm	2.4	4, 10

Notes:

1. a) Add the following note: "The unit weight used to calculate all Hot-Mix Asphalt Surface Mixtures is 2.4 Kg/m2/mm".
   b) For reconstruction or new construction, use 51 mm Surface Course for Full-Depth AC Pavement - see Example Cross Section ["3. Full Depth Pavement" Tab]
   c) If resurfacing of a Bridge is part of a larger roadway resurfacing use the same mixture as the roadway on the bridge.
   If there are only Bridge Repairs with no roadway resurfacing (Typ. < 250 Metric Tons) use "Waterproofing Membrane System" with the following surface mix:

M4060335	HOT-MIX ASPHALT SURFACE COURSE, MIX "D", N50	M TON	IL 9.5 mm	4% @50 Gyr.

2. Used instead of Leveling Binder when the total resurfacing thickness is greater than or equal to 96 mm (w/ Mix "C" or "D") or 100 mm (w/ Mix "F")
3. Refer to one of these cases:
   a) If overlaying bare concrete pavement and using Mix "F" then Leveling Binder thickness will be 19 mm thick
   b) If overlaying bare concrete pavement and using Mix "C" or "D" then Leveling Binder thickness will be 25 mm thick
   c) If overlaying HMA pavement and using Mix "C", "D" or "F" then Leveling Binder thickness will be 19 mm thick
4. Used in small areas that may not be reached with a Paving Machine
5. Use "Mix F, N90" if **MU Truck ADTT** > 800 and location is signalized or 4-way stop; i.e. High Stress Intersection or large volume of trucks such as a Weigh Station
6. Use "Polymerized Binder, IL-19, N 90" if **MU Truck ADTT** > 800 and location is signalized or 4-way stop; i.e. High Stress Intersection or large volume of trucks such as a Weigh Station
7. Use with **District 1** Special Provision "Hot-Mix Asphalt IL 4.75". Do NOT use Pay Item for "Strip Reflective Crack Control".
8. **Local Agency** may use surface and binder N30 L (Low ESAL) for ADT<700 and 10% trucks or less (3% Air Voids @ 30 Gyr.)
9. Designer Options:
   A. For high ADT use Mixture IL-4.75.
   B. For intersection use Mixture IL-4.75.
   C. For superelevation correction use Leveling Binder.
   D. **Local Agency** may use either Leveling Binder or the IL-4.75 Mixture
   E. Do NOT use 4.75 mm Mix on any temporary roads or pavements
10. Use with Pay Item for "Strip Reflective Crack Control".
11. See Bureau of Materials for a Case by Case Selection for use of SMA on Arterial Roadways

HOT-MIX ASPHALT - Mix Selection

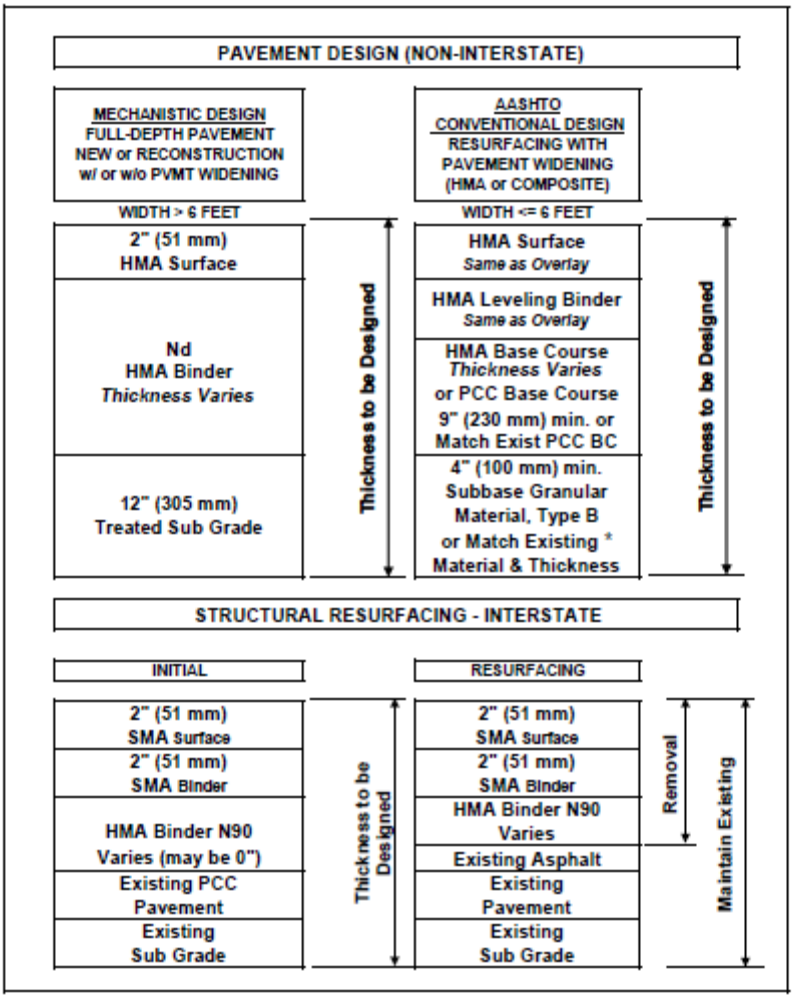
DISTRICT ONE - HOT-MIX ASPHALT SPECIALTY TREATMENTS (METRIC)

OPERATIONS	LOCATION	PAY CODE NO	PAY ITEM DESCRIPTION	UNIT	PERCENT AIR VOIDS @ Ndes	Lift Thickness	MIX TYPE	Notes
PATCHING	NON-INTERSTATE	M4428_ _ _	CLASS D PATCHES, Of TYPE and THICKNESS specified	SQ M	4% @ 70 Gyr.	57 mm min.	CLASS D PATCH (HMA BINDER IL-19 mm)	
	INTERSTATE	M4428_ _ _	CLASS D PATCHES, Of TYPE and THICKNESS specified	SQ M	4% @ 105 Gyr.	76 mm min.	CLASS D PATCH (HMA BINDER IL-25 mm)	
	ALL	M4061005	HOT-MIX ASPHALT REPLACEMENT OVER PATCHES	M TON	4% @ 70 Gyr.	57 mm min.	HMA REPLACEMENT OVER PATCHES (HMA BINDER IL-19 mm)	
SHOULDER RESURFACING	NON-INTERSTATE		BINDER - SAME AS OVERLAY	M TON	BINDER PROPERTIES - SAME AS OVERLAY		BINDER MIX TYPE - SAME AS OVERLAY	
			SURFACE - SAME AS OVERLAY	M TON	SURFACE PROPERTIES - SAME AS OVERLAY		SURFACE MIX TYPE - SAME AS OVERLAY	
	INTERSTATE	MX406215	HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N70	M TON	4% @ 70 Gyr.	57 mm min.	HMA BINDER COURSE, IL 19.0, N70	
		MX406024	HOT-MIX ASPHALT SURFACE COURSE, MIX "D", N70	M TON	4% @ 70 Gyr.	38 mm	HMA SURFACE COURSE, MIX "D", N70 (IL 9.5 mm)	
SHOULDER RECON	NON-INTERSTATE	M4820_ _ _	HOT-MIX ASPHALT SHOULDER, and specify THICKNESS	SQ M	2% @ 30 Gyr.	57 mm min.	HMA SHOULDER (HMA BINDER IL-19 mm)	
	INTERSTATE	M4820_ _ _	HOT-MIX ASPHALT SHOULDER, and specify THICKNESS	SQ M	4% @ 70 Gyr.	57 mm min.	HMA SHOULDER (HMA BINDER IL-19 mm)	
			SURFACE - SAME AS OVERLAY	M TON	SURFACE PROPERTIES - SAME AS OVERLAY		SURFACE MIX TYPE - SAME AS OVERLAY	
DRIVEWAY	P.E. & C.E.	M0850_ _ _	HOT-MIX ASPHALT BASE COURSE, and specify THICKNESS	M TON	4% @ 50 Gyr.	57 mm min.	HMA BASE COURSE (HMA BINDER IL-19 mm)	
		M4063310	HOT-MIX ASPHALT SURFACE COURSE, MIX "C", N50	M TON	4% @ 50 Gyr.	51 mm	HMA SURFACE COURSE, MIX "C", N50 (IL 9.5 mm)	
BASE CSE & BASE CSE WIDENING	ALL	M0850_ _ _	HOT-MIX ASPHALT BASE COURSE, and specify THICKNESS	SQ M	4% @ XX Gyr.	57 mm min.	HMA BASE COURSE (HMA BINDER IL-19 mm)	3
		M0860_ _ _	HOT-MIX ASPHALT BASE COURSE WIDENING, and specify THICKNESS	SQ M	4% @ XX Gyr.	57 mm min.	HMA BASE COURSE WIDENING (HMA BINDER IL-19 mm)	3
TEMPORARY ROAD	NON-INTERSTATE	MX030199	TEMPORARY PAVEMENT (Thickness shown on Plans)	SQ M	4% @ 50 Gyr.	57 mm min.	TEMP PAVEMENT (HMA BINDER IL-19 mm)	1, 2
					4% @ 50 Gyr	38 mm	HMA SURFACE COURSE, MIX "D", N50 (IL 9.5 mm)	1, 2
	INTERSTATE	MX030504	TEMPORARY PAVEMENT (INTERSTATE) (Thickness shown on Plans)	SQ M	4% @ 70 Gyr	57 mm min.	TEMP PVMT (INTERSTATE) (HMA BINDER IL-19 mm)	1, 2
					4% @ 70 Gyr	38 mm	HMA SURFACE COURSE, MIX "D", N70 (IL 9.5 mm)	1, 2
MEDIAN SURFACE/ BIKEWAY	MEDIAN SURFACE/ BIKEWAY	M4063310	HOT-MIX ASPHALT SURFACE COURSE, MIX "C", N50	M TON	4% @ 50 Gyr.	51 mm	HMA SURFACE COURSE, MIX "C", N50 (IL 9.5 mm)	
STABILIZED SUBBASE	AS SPECIFIED	M3120_ _ _	STABILIZED SUB-BASE-HOT-MIX ASPHALT and specify THICKNESS	SQ M	2% @ 30 Gyr.	115 mm	STABILIZED SUBBASE HMA, BAM [Used for Rural Jointed PCC and 20-Year CRC Pavement Design]	
		M3120_ _ _	STABILIZED SUB-BASE-HOT-MIX ASPHALT and specify THICKNESS	SQ M	*	115 mm	STABILIZED SUBBASE HMA (IL-19 mm) [For Extended Life (30 or 40-Year) CRC Pavement Design] * SEE SPECIAL PROVISION	

Notes:

1. Check with Bureau of Materials for AC Type if Temporary Pavement stays for more than one (1) year
2. A Surface Cource is NOT required if Temporary Pavement is removed within same construction season; use Base or Binder Course full depth
3. The Number of Gyrations is the same as the Ndesign of the Surface Mixture

HOT-MIX ASPHALT - Mix Selection



All Thicknesses Determined by the Pavement Design Engineer.
If reconstruction/widening > 10,000 SqYds also need BDE approval.

* May try to match existing pavement Design; depends on quality of existing material which needs to be verified with Pavement Cores.

See Bureau of Materials requarding mixture questions.

HOT-MIX ASPHALT - Mix Selection

Examples of Mix Tables Required on Plans

SMART or 3P RESURFACING PROJECTS

HOT-MIX ASPHALT MIXTURE REQUIREMENTS		
	MIXTURE TYPE	AIR VOIDS @ Ndes
	HOT-MIX ASPHALT SURFACE COURSE, MIX "D", N70 (IL 9.5 mm)	4% @ 70 Gyr.
3P Only =>	POLYMERIZED LEVELING BINDER (MACHINE METHOD), IL-4.75, N50	4% @ 50 Gyr.
	CLASS D PATCHES (HMA BINDER IL-19 mm)	4% @ 70 Gyr.
	HMA REPLACEMENT OVER PATCHES (HMA BINDER IL-19 mm)	4% @ 70 Gyr. <== *use only if Patching first before milling*

see 1 ==> THE UNIT WEIGHT USED TO CALCULATE ALL HMA SURFACE MIXTURE QUANTITIES IS 112 LBS/SQ YD/IN.

see 2 ==> THE "AC TYPE" FOR POLYMERIZED HMA MIXES SHALL BE "SBS/SBR PG 70 -22" AND FOR NON-POLYMERIZED HMA THE "AC TYPE" SHALL BE "PG 64 -22" UNLESS MODIFIED BY DISTRICT ONE SPECIAL PROVISIONS. FOR "PERCENT OF RAP" SEE DISTRICT ONE SPECIAL PROVISIONS.

INTERSECTION RECONSTRUCTION or ROADWAY WIDENING PROJECTS

HOT-MIX ASPHALT MIXTURE REQUIREMENTS	
MIXTURE TYPE	AIR VOIDS @ Ndes
PAVEMENT RESURFACING	
HOT-MIX ASPHALT SURFACE COURSE, MIX "D", N50 (IL 9.5 mm)	4% @ 50 Gyr.
POLYMERIZED LEVELING BINDER (MACHINE METHOD), IL-4.75, N50	4% @ 50 Gyr.
FULL DEPTH PAVEMENT	
HOT-MIX ASPHALT SURFACE COURSE, MIX "D", N50 (IL 9.5 mm); 2"	4% @ 50 Gyr.
HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N50	4% @ 50 Gyr.
PAVEMENT WIDENING	
HOT-MIX ASPHALT SURFACE COURSE, MIX "D", N50 (IL 9.5 mm)	4% @ 50 Gyr.
POLYMERIZED LEVELING BINDER (MACHINE METHOD), IL-4.75, N50	4% @ 50 Gyr.
HMA BASE COURSE (HMA BINDER IL-19 mm); 10"	4% @ 50 Gyr.
DRIVEWAYS	
HMA SURFACE COURSE, MIX C, N 50 (IL 9.5 mm); 2"	4% @ 50 Gyr.
HMA BASE COURSE (HMA BINDER IL-19 mm); PE -6", CE - 8"	4% @ 50 Gyr.
PATCHING	
CLASS D PATCHES (HMA BINDER IL-19 mm)	4% @ 70 Gyr.
HMA REPLACEMENT OVER PATCHES (HMA BINDER IL-19 mm)	4% @ 70 Gyr. <== *use only if Patching first before milling*

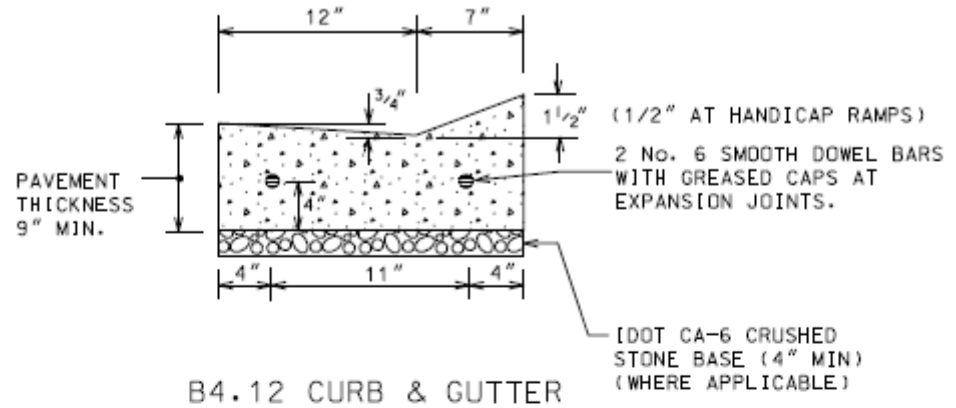
see 1 ==> THE UNIT WEIGHT USED TO CALCULATE ALL HMA SURFACE MIXTURE QUANTITIES IS 112 LBS/SQ YD/IN.

see 2 ==> THE "AC TYPE" FOR POLYMERIZED HMA MIXES SHALL BE "SBS/SBR PG 70 -22" AND FOR NON-POLYMERIZED HMA THE "AC TYPE" SHALL BE "PG 64 -22" UNLESS MODIFIED BY DISTRICT ONE SPECIAL PROVISIONS. FOR "PERCENT OF RAP" SEE DISTRICT ONE SPECIAL PROVISIONS.

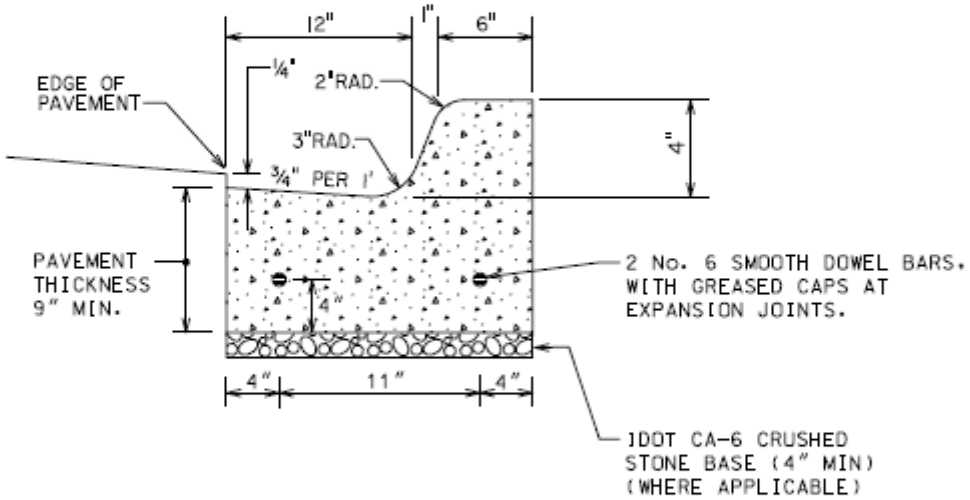
1. This NOTE must always be present under the Mixture Table when including a pay item for Surface Course that is measured in Tons.

2. This NOTE Refers to the following District One Special Provisions:
"Use of RAP (Dist 1)" (USE_of_RAP(D1).docx)
"HMA Mixture IL-4.75 (Distr 1) " (HMA IL 4.75 D-1.docx)
"Stone Matrix Asphalt (SMA)" (SMA_D-1.doc)

DEPRESSED CURB



B4.12 CURB & GUTTER



NOTES:

1. CONTRACTION JOINTS SHALL BE PLACED AT 15' INTERVALS. AND SHALL BE GROOVED WITH AN EDGING TOOL. SEE ARTICLE 420.10 OF IDOT STANDARD SPECIFICATIONS.

2. EXPANSION JOINTS SHALL BE PLACED AT 60' (MAX) INTERVALS. AT ALL P.C.'S AND P.T.'S. CURB RETURNS. AND AT THE END OF EACH POUR

3. P.C.C. SHALL CONSIST OF IDOT CLASS SI (6.1 BAG MIX) CONCRETE. WITH 5% TO 8% AIR ENTRAINMENT. AND A MINIMUM COMPRESSIVE STRENGTH OF 3.500 PSI AT 14 DAYS.(NO FLY ASH ALLOWED)

FOR RESIDENTIAL STREETS ONLY

DATE: 10-22-10
NOT TO SCALE

B4.12 COMB. CONCRETE CURB AND GUTTER (SPECIAL)
B4.12 P.C.C. INTEGRAL CURB AND GUTTER (SPECIAL)

Appendix 1.4

Pedestrian Bridge Calculaitons

Initial Loading Calculations

Bridge selected for design criteria is composite: concrete deck bridge with steel box girder support

Deck dimensions are : length = 60', width = 10', deck thickness = 8 "

supports will be footings at each end of bridge, each supporting half of the bridge total weight. Due to no area for middle support, steel box girder support will be used underneath bridge span

Bridge Deck Dimensions/Area

In[2787]:=
```
DeckWidth = 10; DeckLength = 60;
```

In[2788]:=
```
Concthickness = 8 / 12.;
```

In[2789]:=
```
Adeck = DeckLength * DeckWidth
```

Out[2789]=
```
600
```

In[2790]:=
```
Vdeck = Adeck * Concthickness
```

Out[2790]=
```
400.
```

Live Load Calculations

http : // www.cameronbridgeworks.com/index.asp?pageId = 81

Pedestrian Live Load

Pedestrian Distributed Live Load of bridge deck (lb/ft^2)

In[2791]:=
```
W = 85 (0.25 + 15 / (Adeck^.5))
```

Out[2791]=
```
73.3017
```

Total Pedestrian Live Load (lb)

In[2792]:=
```
WL = W * Adeck
```

Out[2792]=
```
43981.
```

In[2793]:=
```
WL = 4500;
```

Vehicle Live Load

No vehicle traffic on bridge, can be ignored

Rain/Snow Load

Due to regular clearing of snow/rain from bridge, loads can be ignored

Wind Load

Wind load (psf)

In[2794]:=
```
Wind = 30;
```

In[2795]:=
```
WlWind = 30 * Adeck
```

Out[2795]=
```
18 000
```

Dead Load Calculaions

Bridge Deck Weight Dead Load (dead load factor 1)

Weight of the bridge structure will account for the dead load

specifc weight of normal strength concrete (lb/ft^3)

In[2796]:=
```
ConcWeight = 145;
```

Dead loading due to bridge deck

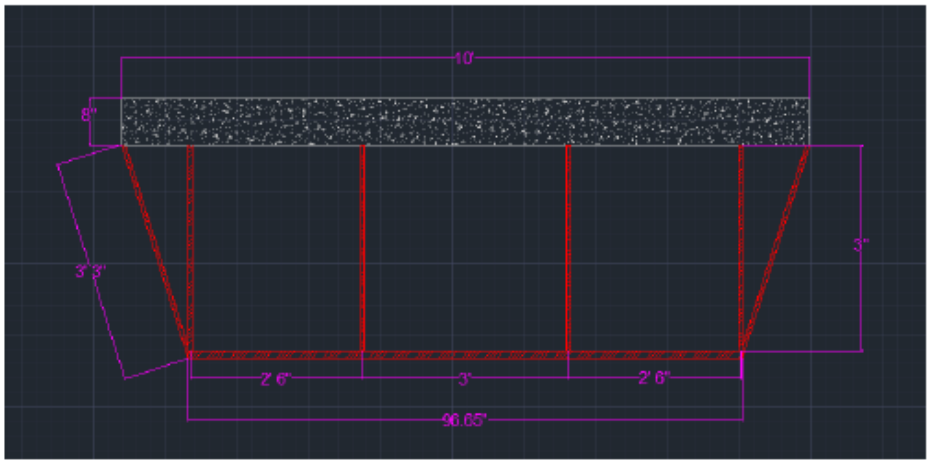
In[2797]:=
```
WdDeck = ConcWeight * Vdeck
```

Out[2797]=
```
58 000.
```

Bridge Girder Support Weight Dead Load (dead load factor 2)

http : // www.centralsteelservice.com/a709 - 50 W.htm

Cross Section of Bridge and Grider Support System



ASTM A709 Grade 50 steel will be used for the box girder support of the bridge

A709 Grade 70 ksi steel density (lb/in^3)

In[2798]:=
```
ρsteel = 0.284;
```

loading on box girder support from deck weight and pedestrian traffic (lb/ft)

In[2799]:=
```
deckLoad = Max[1.4 WdDeck, 1.2 WdDeck + 1.6 WL] / Adeck
```

Out[2799]=
```
135.333
```

http : // www.awc.org/pdf/DA6 - BeamFormulas.pdf

simply supported beam with distributed load as only acting force

In[2800]:=
```
w = deckLoad
```

Out[2800]=
```
135.333
```

Max moment will be in greatest unbraced length of beam : 3' middle span

In[2801]:=
```
l = 3;
```

Max bending moment on steel support structure (lb-ft)

In[2802]:=
```
Mb = w (l^2) / 8
```

Out[2802]=
```
152.25
```

according to table 3 - 6 of AISC Steel Manual W30x116 (189 lb-ft @ 60' span) section will have easily sufficient strength to support max bending moment of bridge
3-47

Selection of W - shape for columns of girder system: W 30x116

In[2803]:=
```
Ag = 34.2; tf = .85; tw = 0.565;
```

base of girder system

In[2804]:=
```
b = 8 * 12; h = 3 * 12; Lside = 3 * (3 / 12) * 12;
```

Steel Area required for girder support system (in^2)

In[2805]:=
```
Asteel = (b * tf) + (4 * tw * h) + 2 (Lside * tw)
```

Out[2805]= 173.13

In[2806]:=
```
Vsteel = Asteel * (DeckLength * 12)
```

Out[2806]= 124654.

In[2807]:=
```
WdSteel = Vsteel * ρsteel
```

Out[2807]= 35401.6

Dead loading due to bridge abutment supports (dead load factor 3)

https : // www.dropbox.com/home/Group %205 %20 Senior %20 Design %20 Project/-Pedestrian %20 Bridge

With use of 2' based column running the 10' width of bridge deck, 17.5' tall abutments :

In[2808]:=
```
heightDeck = 17.5; b = 2; l = 10;
```

In[2809]:=
```
Vabutment = b * l * heightDeck
```

Out[2809]= 350.

In[2810]:=
```
Wdabutment = ConcWeight * Vabutment
```

Out[2810]= 50750.

Bridge Deck Fencing weight ingored due to small infulence on overall dead load

Total Bridge Dead Weight Calculation

Foundation will take weight of 1 column, half weight of the deck, and half weight of the steel support

Applying factor of saftey to dead weight calculation

In[2811]:=
```
WD = 1.4 (WdDeck / 2 + WdSteel / 2 + Wdabutment)
```

Out[2811]= 136431.

Load Combinations

Using LRFD loading combinations :

In[2812]:=
```
Loading = Max[1.4 WD, 1.2 WD + 1.6 WL, 1.2 WD + 1.6 WlWind + 0.5 WL]
```

Out[2812]=
```
194767.
```

Maxium Loading on bridge deck (lb)

In[2813]:=
```
MaxLoading = 220 000;
```

extra weight added for bridge railing system, not included in dead load calculation

Foundation Calculations

Assumed size of spread footing (ft)

In[2814]:=
```
B = 5; L = 10;
```

In[2815]:=
```
Hfooting = 3;
```

In[2816]:=
```
Qall = MaxLoading;
```

Soil Analysis

Using NRCS site Soil Survey : Soil beneath bridge is Nira Silty Lay Loam (570C2)

Assumed Depth of Footing (feet)

In[2817]:=
```
Df = 4;
```

Soil Friction Angle

http : // www.geotechdata.info/parameter/angle - of - friction.html

Silty Clay Loam: 18-32 degrees

In[2818]:=
```
ϕ = 25;
```

Soil Cohesion

http : // www.geotechdata.info/parameter/cohesion.html

Silty Clay Loam : 209 - 418 psf

In[2819]:=
```
c = 315;
```

Soil Unit Weight

Silty Clay Loam (psf)

In[2820]:=
```
γ = 96.8;
```

Bearing Capacity Factors

In[2821]:=
```
Nc = 20.72; Nq = 10.66; Nγ = 10.88;
```

Shape Factors

In[2822]:=
```
ϕ > 10
```

Out[2822]=
```
True
```

In[2823]:=
```
Fcs = 1 + (B / L) (Nq / Nc)
```

Out[2823]=
```
1.25724
```

In[2824]:=
```
Fγs = 1 + (B / L) Tan[25] // N
```

Out[2824]=
```
0.933237
```

Depth Factors

In[2825]:=
```
Fγd = 1;
```

In[2826]:=
```
Fcd = 1 + 0.4 ArcTan[Df / B]
```

Out[2826]=
```
1.2699
```

In[2827]:=
```
Fqd = 1 + 2 Tan[ϕ] * (1 - Sin[ϕ]) ^ 2 * ArcTan[Df / B] // N
```

Out[2827]=
```
0.768955
```

Load Inclination Factors

Due to much larger vertical dead/live loading than horozontal wind loading, β is assumed to be small

In[2828]:=
```
β = 5;
```

In[2829]:=
```
Fci = Fqi = (1 - β / 90) ^2 // N
```
Out[2829]=
0.891975

In[2830]:=
```
Fγi = (1 - β / ϕ) ^2 // N
```
Out[2830]=
0.64

Bearing Capacity

In[2831]:=
```
qu = (c * Nc * Fcs * Fcd * Fci) +
   (γ * Df * Nq * Fγs * Fqd * Fqi) + (.5 γ * B * Nγ * Fγs * Fγd * Fγi)
```
Out[2831]=
13 509.4

Check of Inital Footing Size Assumption

In[2832]:=
```
Qult = qu * B * L
```
Out[2832]=
675 471.

In[2833]:=
```
Qult / Qall
```
Out[2833]=
3.07032

ideal realtionship of Qult/Qall = 3, therefore inital assumption of 10' x 5' footing foundation will satisify loading requirements for bridge

Moment Calculations

eccentricity of loading

In[2834]:=
```
emaxX = L / 6 // N
```
Out[2834]=
1.66667

In[2835]:=
```
emaxY = B / 6 // N
```
Out[2835]=
0.833333

Max moment in horozontal direction (lb - ft)

In[2836]:=
```
Mx = Qall * emaxY
```
Out[2836]=
```
183333.
```

Max moment in vertical direction (lb - ft)

In[2837]:=
```
My = Qall * emaxX
```
Out[2837]=
```
366667.
```

Abutment Calculation

Lateral earth pressure (3.11.5 LRFD Bridge Design Manual)

Lateral Earth Pressure

soil unit weight (psf)

In[2838]:=
```
γ
```
Out[2838]=
```
96.8
```

depth of footing support (ft)

In[2839]:=
```
z = Df
```
Out[2839]=
```
4
```

Abutment wall that does not move (Article 3.11.5.2)

soil friction factor (deg)

In[2840]:=
```
ϕf = ϕ * (Pi / 180) // N
```
Out[2840]=
```
0.436332
```

In[2841]:=
```
ko = 1 - Sin[ϕf]
```
Out[2841]=
```
0.577382
```

Lateral Earth Pressure (psf)

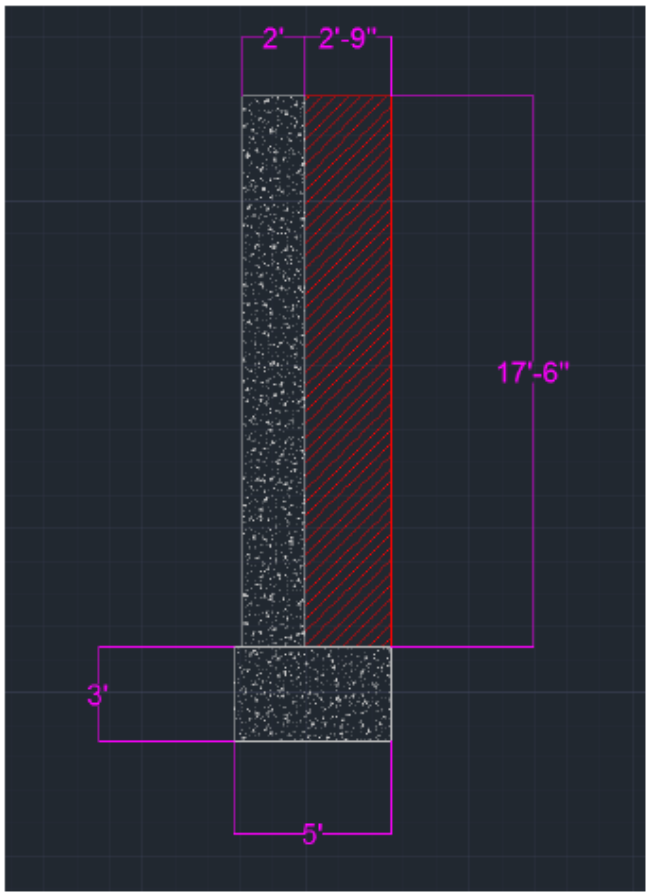
In[2842]:=
```
p = ko * γ * z
```
Out[2842]=
```
223.562
```

Inital Abutment Design Assumption

Section 11 AASHTO LRFD Bridge Design Manual

With footing base of 5', a 2' based abutment is assumed and placed at a distance of 3 " in from the front of the footing

Cross section view of abutment and footing with soil behind



Assume : horozontal loading of soil behind abutment

In[2843]:=
```
β = 0;
```

due to horozontal loading : wall height and height between ground surface and back wall heel are equal

In[2844]:=
```
H = h = 17.5 + 3;
```

In[2845]:=
```
CenteriodFooting = 2.5;
```

Active Earth Pressure Resultant Force (lb)

In[2846]:=
```
Ft = 0.5 γ * h^2 * ko
```
Out[2846]=
```
11 744.
```

Height Force is acting on Wall Heel (ft)

In[2847]:=
```
HFt = H / 3
```
Out[2847]=
```
6.83333
```

Weight of Soil Carried by Wall Heel (lb)

In[2848]:=
```
heightSoil = 17.5; baseSoil = 2.75;
```

In[2849]:=
```
V1 = γ * heightSoil * baseSoil
```
Out[2849]=
```
4658.5
```

distance of force V1 from centroid of footing (ft)

In[2850]:=
```
xV1 = Abs[3.625 - CenteriodFooting]
```
Out[2850]=
```
1.125
```

V2 force does not apply due to horozontal application of Earth Pressure Resultant Force

Weight of Wall Stem (lb)

In[2851]:=
```
W1 = Vabutment * ConcWeight
```
Out[2851]=
```
50 750.
```

distance of force W1 from centroid of footing (ft)

In[2852]:=
```
xW1 = Abs[1.25 - CenteriodFooting]
```
Out[2852]=
```
1.25
```

Weight of Footing (lb)

In[2853]:=
```
W2 = B * L * Hfooting * ConcWeight
```
Out[2853]=
```
21 750
```

Force W2 location at Centroid of Footing

Eccentricity (ft)

In[2854]:=
```
e = ((Ft * Cos[0]) * h / 3 - (Ft * Sin[0]) * B / 2 - V1 * xV1 + W1 * xW1) /
   (V1 + W1 + W2 + (Ft * Sin[0]))
```
Out[2854]= 1.79432

For design to be practical, the eccentricity resultant must fall with the middle third of the base :

Middle third of footing falls within 1.67' - 3.33', therefore design is acceptable

Vertical stresses

In[2855]:=
```
σvmax = V1 / b * (1 + 6 * (e / B))
```
Out[2855]= 7344.57

In[2856]:=
```
σvmin = V1 / b * (1 - 6 * (e / B))
```
Out[2856]= −2686.07

Cost Analysis

According to RSMeans Concrete and Masonry Cost Data

Spread Footing, 1- 5 CY : $350 per CY

10' x 5' x 3' footing = 5.56 CY

In[2857]:=
```
SpreadFootingCY = 5.56;
```
In[2858]:=
```
CostFooting = SpreadFootingCY * 350
```
Out[2858]= 1946.

In[2859]:=
```
Cost1 = 2 * CostFooting
```
Out[2859]= 3892.

Abutment Support System :

2'x10'x17.5' height = 24"x24" average reinforcement: $1,175 per CY

In[2860]:=
```
AbutmentCY = 12.96;
```

Foundation Calculations

Strip Foundation Dimensions

Df: Depth of foundation
tf: Thickness of foundation slab
B: Width of foundation slab

In[2]:=
```
Df = 18; tf = 8; B = 24;
```

Soil Analysis

Using NRCS site Soil Survey : The soil beneath the YMCA is Nira Silty Lay Loam (570B)

Soil Friction Angle

http : // www.geotechdata.info/parameter/angle - of - friction.html
Silty Clay Loam: 18-32 degrees

In[3]:=
```
ϕ = 25;
```

Soil Cohesion

http : // www.geotechdata.info/parameter/cohesion.html

Silty Clay Loam : 209 - 418 psf

In[4]:=
```
c = 315;
```

Soil Unit Weight

Silty Clay Loam

(PSF)

In[5]:=
```
γpsf = 96.8;
```

(PSI)

In[6]:=
```
γpsi = 96.8 / 144
```

Out[6]= 0.672222

Bearing Capacity Factors

In[7]:
```
Nc = 25.13; Nq = 12.72; Nγ = 8.34;
```

Ultimate Bearing Capacity

In[8]:
```
q = γpsi * Df;
```

Strip Foundation Ultimate Bearing Capacity

In[15]:
```
QuStrip = c * Nc + q * Nq + 0.5 * γpsi * B * Nγ
```

Out[15]:
```
8137.14
```

The total allowable gross load on the strip foundation is is 8137.14 Pounds per square inch

Square Foundation Ultimate Bearing Capacity

In[16]:
```
QuSquare = 1.3 * c * Nc + q * Nq + 0.4 * γpsi * B * Nγ
```

Out[16]:
```
10498.5
```

The total allowable gross load on the square foundation is is 10498.5 Pounds per square inch

Allowable Bearing Capacity

The Factor of safety is assumed to be 3 times that load that will be needed so FS = 3

In[14]:
```
FS = 3;
```

In[19]:
```
QallStrip = QuStrip / FS
```

Out[19]:
```
2712.38
```

In[20]:
```
QallSquare = QuSquare / FS
```

Out[20]:
```
3499.49
```

In[2861]:=
```
CostAbutment = AbutmentCY * 1175
```
Out[2861]=
```
15228.
```

In[2862]:=
```
Cost2 = 2 * CostAbutment
```
Out[2862]=
```
30456.
```

Cost of cast in place concrete support system :

In[2863]:=
```
SumCostSupport = Cost1 + Cost2
```
Out[2863]=
```
34348.
```

Sum Project Cost

According to correspondence with ExcelBridge Company, when provided with details about the site' s pedestrain bridge estimated cost was $600,000 - 750,000

Due to unforseen use of steel girders:
assumption made that bridge cost is at or around: $700, 000

Bridge Installation Cost :	$350,000
Footing/Abutment Cast in Place Concrete Cost :	$40,000
Total Estimated Cost of Pedestrain Bridge :	$1,090,000

Appendix 1.5

Appendix 1.6

<The following pages are copies of the permit applications required for construction>

BUILDING PERMIT APPLICATION

Jurisdiction of WASHINGTON, IOWA

Applicant to complete numbered spaces only.

1

Job Address					
1	Legal Descr	Lot No.	Block	Tract ☐ See attached sheet)	
2	Owner	Mail Address		Zip	Phone
3	Contractor	Mail Address		Phone	License No.
4	Architect or Designer	Mail Address		Phone	License No.
5	Engineer	Mail Address		Phone	License No.
6					
7	Use of Building				
8	Class of work ☐ New ☐ Addition ☐ Alteration ☐ Repair ☐ Move ☐ Remove				
9	Describe work				
10	Change of use from				
	Change of use to				
11	Valuation of work: $				

Owner

Job Address

Special conditions:

Application accepted by	Plans checked by	Approved for issuance by

Plan check fee		Permit fee
Type of Const	Occupancy Group	Division
Size of Bldg. (Total) Sq Ft.	No. of Stories	Max Occ. Load
	Use Zone	Fire Sprinklers Required ☐ Yes ☐ No
No. of Dwelling Units		

NOTICE

SEPARATE PERMITS ARE REQUIRED FOR ELECTRICAL, PLUMBING, HEATING, VENTILATING OR AIR CONDITIONING.

THIS PERMIT BECOMES NULL AND VOID IF WORK OR CONSTRUCTION AUTHORIZED IS NOT COMMENCED WITHIN 18 DAYS, OR IF CONSTRUCTION OR WORK IS SUSPENDED OR ABANDONED FOR A PERIOD OF 180 DAYS AT ANY TIME AFTER WORK IS COMMENCED

I HEREBY CERTIFY THAT I HAVE READ AND EXAMINED THIS APPLICATION AND KNOW THE SAME TO BE TRUE AND CORRECT. ALL PROVISIONS OF LAWS AND ORDINANCES GOVERNING THIS TYPE OF WORK WILL BE COMPLIED WITH WHETHER SPECIFIED HEREIN OR NOT. THE GRANTING OF A PERMIT DOES NOT PRESUME TO GIVE AUTHORITY TO VIOLATE OR CANCEL THE PROVISIONS OF ANY OTHER STATE OR LOCAL LAW REGULATING CONSTRUCTION OR THE PERFORMANCE OF CONSTRUCTION.

Signature of Contractor or Authorized Agent (Date)

Signature of Owner (If Owner Builder) (Date)

Special Approvals	Required	Received	Not Required
ZONING			
HEALTH DEPT.			
FIRE DEPT.			
SOIL REPORT			
PLUMBING			
ELECTRICAL			
MECHANICAL			
OTHER			

WHEN PROPERLY VALIDATED (IN THIS SPACE), THIS IS YOUR PERMIT

PERMIT FEE	+	ADD. FEES & PENALTIES	TOTAL FEES	VALIDATION	DATE	RECEIPT NUMBER

INSPECTION APPROVALS

	DATE	REMARKS	INSPECTOR
FOUNDATIONS:			
SET BACK			
REINFORCING			
FOUNDATION WALL & WEATHERPROOFING			
CONCRETE SLAB			
FRAMING			
INTERIOR LATHING OR GYPSUM WALLBOARD			
EXTERIOR LATHING			
MASONRY			
FINAL			

USE SPACE BELOW FOR NOTES, FOLLOW-UP, ETC.

City of Washington

Conditional Use Permit

Conditional Use Permits shall go before the Planning and Zoning Commission for approval. Regulations for Conditional Use Permits shall follow and can be found under Chapter 22 of the Municipal Code of the City of Washington.

A. Petitioner Information

Name _____ Phone _____

Address _____

Address / Location of Conditional Use _____

_____

Detailed Description of Conditional Use _____

_____

_____

_____

_____

_____

_____

B. Plot Plan

Attach site plan and/or plot plan of the proposed Conditional Use to this petition.

C. Petition Fee

Petition is to be accompanied by a non-refundable fee of **$150** for Conditional Use Permits.

D. Recording Fees

If approved, a copy of the Conditional Use Permit is to be filed with the Washington County Recorder's office within one (1) month, at the petitioner's cost, or the permit will become null and void.

E. Permit Information

If at any time the conditions of a Conditional Use Permit fail to be maintained the permit becomes null and void.

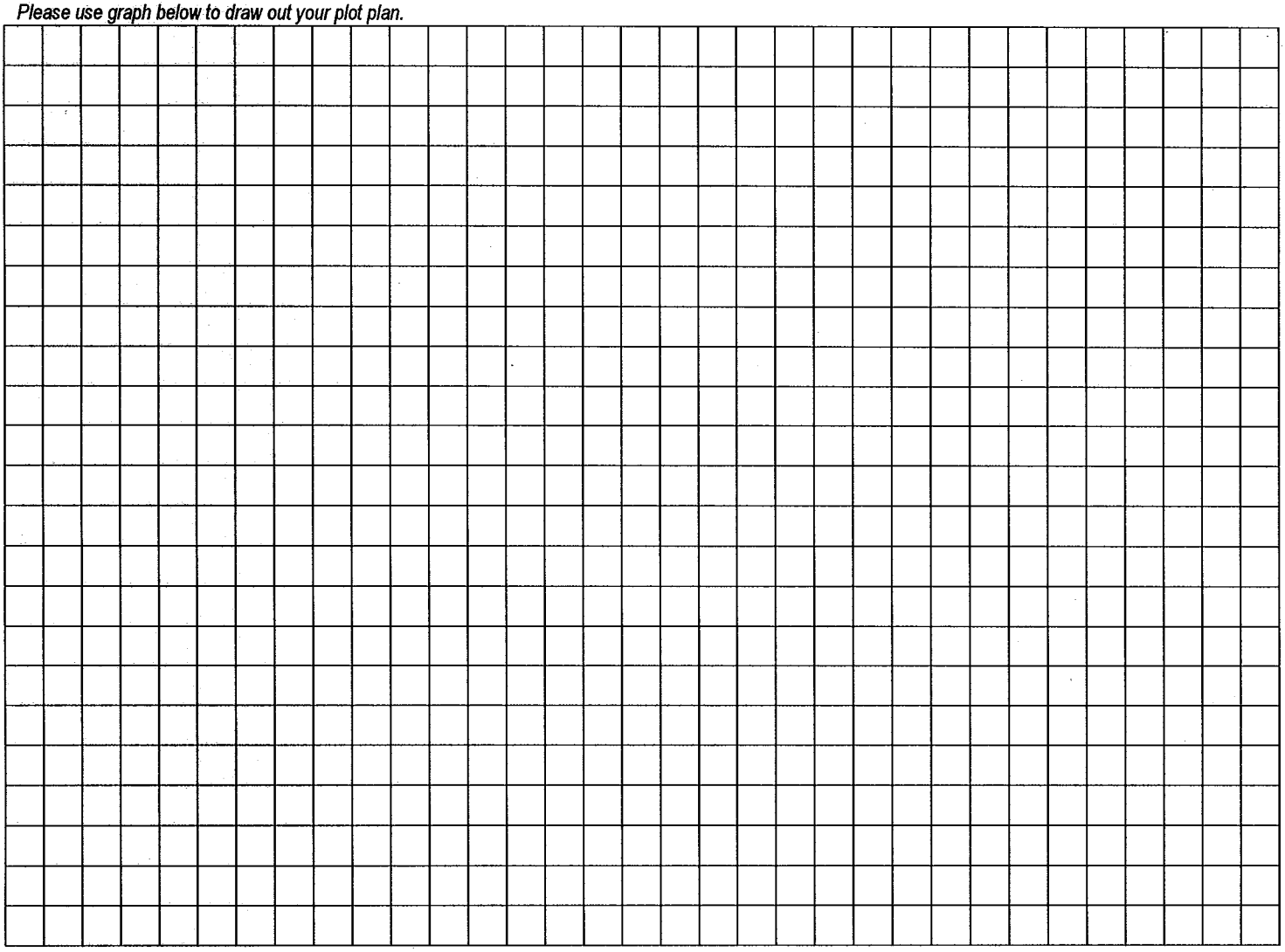
Signed _____ Date _____

City of Washington - Plot Plan Form

Building/Zoning Department

Property Address: _____ Date Submitted: _____

Please use graph below to draw out your plot plan.



I certify that the above Plot Plan is a true representation of this lot and accurately shows all dimensions, easements and proposed and existing structures on said lot. Any deviation from this approved Plot Plan may void the Building Permit and/or zoning approval.

SIGNATURE OF OWNER/CONTRACTOR _____

※ No accessory building or structure shall be erected in any yard other than a rear yard and it shall occupy less than thirty (30%) of the required rear yard.

※ Structures may not be located on or over utility easements. The location of the sewer lateral should be shown on the site plan when applicable. The property owner and contractor are responsible for checking and locating all utilities and easement restrictions. *(The city does not keep records of private sewer and water lines on private property).*

※ Call "Iowa One Call" at 1-800-292-8989 to locate all public utilities *(water, sewer, cable, gas, electric and phone)* on your property before you begin construction.

Application for Conditional Use Permit

Washington County Planning and Zoning, 210 West Main Street, Washington, Iowa 52353
319.653.7794 — zoning@co.washington.ia.us — http://co.washington.ia.us

Owner Information:

Owner _____
(Name)

Address _____
(Street or PO Box)

_____
(City, State, ZIP)

Phone _____

Email _____

Applicant Information (if different than owner):

Applicant _____
(Name)

Address _____
(Street or PO Box)

_____
(City, State, ZIP)

Phone _____

Email _____

Property Information:

Street Address: _____ **(E911) Address:** _____

Total Acres: _____ **Parcel Identification Number (PIN):** _____

Brief Legal Description: _____
(Section) (Township) (Range)

Zoning Map District: (check one) ❑ AG ❑ UR ❑ CD ❑ AR ❑ VR ❑ C ❑ I

Use Information:

Description of proposed development / land use: (Please describe in the space below)

_____

_____

Submittal Requirements:

See attached pages for additional submittal requirements

Certification:

The undersigned is/are the owner(s) of the property described on this application, located in the unincorporated area of Washington County, Iowa, and hereby certify that the information provided herein is true and correct. I hereby give my consent for the County Planning and Zoning Administrator (or designee) to conduct a site visit and photograph the subject property. This development is subject to and shall be required, as a condition of final approval, to comply with all Zoning Ordinance policies, requirements, and standards that are in effect at the time of final permit issuance.

Owner: _____ **Date:** _____ **Applicant:** _____ **Date**: _____

For Office Use Only:

Case Number: _____ Date Received: _____ Reviewed By: _____

Amount / Check Number: $_____/_____ Hearing Date: _____ D&O Recorded: _____

Additional Submittal Requirements:

The following information is required to be submitted with all applications for a Conditional Use Permit unless waived by the Planning and Zoning department.

1. Description of proposed development / land use:

2. What are your proposed days and hours of operation?

3. How many employees will work at this site? Full-time: _____ Part-time: _____

4. How many parking spaces will be provided?

5. What type of county, state and/or federal permits will be required to conduct the business?

6. Estimate the amount and type of traffic generated on a daily basis.

7. Describe the types and quantities of materials stored on this site:

8. Will the proposed use be visible from adjacent roads or neighboring properties? If so, describe any existing and/or proposed trees, vegetation, fences or topography that would provide a visual buffer of the proposed use:

9. Will there be any noise, odors, vibrations, glare, fumes, dust, smoke, electrical interference, groundwater pollution or other undesirable, hazardous or nuisance conditions generated by the use? If so, please explain in detail each condition and how the impact will be mitigated:

10. Describe the type and quantities of water and sewage demands generated by the proposed use:

11. Describe any signage proposed for the use or site. Be specific as to the location, size and type of signage proposed.

12. Please add any other information that will be useful in better understanding the proposed use:

Approval Standards:

Please address the following approval standards as listed in Article 9.01.H.4e in the Zoning Ordinance. In order to approve a Conditional Use Permit the Board of Adjustment will evaluate each of these standards. If your answer to a question does not meet the approval standard please provide a statement summarizing your plan to adequately address the issue. Attach additional sheets if needed.

1. Is the proposed use a "Conditional Use" as defined in Article 4.10.B and permitted by "Conditional Use Permit" in Table 4.01 of the Zoning Ordinance? If not, consult with the Planning and Zoning office prior to completing this application.

2. Does the proposed structure or use of land by its design, construction and operation adequately safeguard the health, safety and welfare of the occupants of adjoining and surrounding property?

3. Does the proposed use unduly increase congestion in the public streets?

4. Does the proposed use increase public danger of fire, or increase any risk to safety?

5. Does the proposed use diminish or impair established property values in surrounding areas?

6. Does the proposed use have any detrimental impact on the use and enjoyment of adjoining properties?

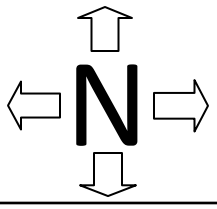
Site Plan:

On the following page (or by separate attachment) prepare a site plan defining the property boundaries and proposed development. The site plan and attachments shall include the following:

- ❑ North point, and scale (feet per inch)
- ❑ Lot or parcel dimensions
- ❑ Location and dimensions of all existing and proposed structures and other facilities
- ❑ Setback of structures/facilities from lot lines (in feet or feet/inches)
- ❑ Access to all public or private streets
- ❑ Parking lot layout showing surface type, number of spaces, dimensions of aisles
- ❑ Location and size of existing and proposed utilities
    - Septic tank and septic field locations
    - Wells or rural water lines
    - Gas lines
    - Electrical/Phone
- ❑ Drainage control structures, direction of surface runoff, detention areas, etc.)
- ❑ Easements of record and new proposed easements
- ❑ Existing and proposed landscaping; storage and loading areas
- ❑ Location and size (both freestanding and attached) of signs and illumination technique
- ❑ Location and type of all exterior lighting
- ❑ Other information as required (topography, fences and screening, erosion control, etc.)
- ❑ Vicinity map (relationship of site to surrounding property)

CONDITIONAL USE PERMIT SITE

IN THE SPACE PROVIDED BELOW, or by separate attachment, provide a site plan for the proposed Conditional Use Permit. The map must be drawn to scale and include ***ALL*** items listed on page 3 above (unless waived by the Planning and Zoning Department).



Scale: _____ = _____

ELECTRICAL PERMIT APPLICATION

Jurisdiction of WASHINGTON, IOWA

Applicant to complete numbered spaces only.

3

JOB ADDRESS						OWNER / JOB ADDRESS
1	LEGAL DESCR.	LOT NO.	BLOCK	TRACT (☐ SEE ATTACHED SHEET)		
2	OWNER	MAIL ADDRESS		ZIP	PHONE	
3	CONTRACTOR	MAIL ADDRESS		PHONE	LICENSE NO.	
4	ARCHITECT OR DESIGNER	MAIL ADDRESS		PHONE	LICENSE NO.	
5	ENGINEER	MAIL ADDRESS		PHONE	LICENSE NO.	
6						
7	USE OF BUILDING					
8	CLASS OF WORK: ☐ NEW ☐ ADDITION ☐ ALTERATION ☐ REPAIR ☐ MOVE ☐ REMOVE					
9	DESCRIBE WORK.					

SPECIAL CONDITIONS.

APPLICATION ACCEPTED BY	PLANS CHECKED BY	APPROVED FOR ISSUANCE BY

NOTICE

THIS PERMIT BECOMES NULL AND VOID IF WORK OR CONSTRUCTION AUTHORIZED IS NOT COMMENCED WITHIN 180 DAYS, OR IF CONSTRUCTION OR WORK IS SUSPENDED OR ABANDONED FOR A PERIOD OF 180 DAYS AT ANY TIME AFTER WORK IS COMMENCED.

I HEREBY CERTIFY THAT I HAVE READ AND EXAMINED THIS APPLICATION AND KNOW SAME TO BE TRUE AND CORRECT. ALL PROVISIONS OF LAWS AND ORDINANCES GOVERNING THIS TYPE OF WORK WILL BE COMPLIED WITH WHETHER SPECIFIED HEREIN OR NOT. THE GRANTING OF A PERMIT DOES NOT PRESUME TO GIVE AUTHORITY TO VIOLATE OR CANCEL THE PROVISIONS OF ANY OTHER STATE OR LOCAL LAW REGULATING CONSTRUCTION OR THE PERFORMANCE OF CONSTRUCTION.

Signature of Contractor or Authorized Agent (Date)

Signature of Owner (If Owner Builder) (Date)

PERMIT FEES

		No.	Each	Fee
RECEPTACLE / LIGHT / SWITCH	Total Outlets			$
LIGHTING FIXTURES	Total Fixtures			
RANGES CLO. DRYER WTR. HTR.				
GARBAGE DISP. STA. COOK TOP				
DISHWASHER CLOTHES WASHER				
SPACE HTR. STA. APPL. 1 HP MAX.				
MOTORS:	HP			
SIGNS	NO. TRANS.			
	NO LAMPS			
TEMP POWER ☐ POLE ☐ UNDGD.				
SERVICE ☐ NEW ☐ CHANGE	0-200A			
	201-1000A			
	OVER 1000A			
PERMIT ISSUING FEE				$
	TOTAL FEE			$

WHEN PROPERLY VALIDATED (IN THIS SPACE), THIS IS YOUR PERMIT

PERMIT FEE		ADD. FEES & PENALTIES	TOTAL FEES	VALIDATION	DATE	RECEIPT NUMBER
	+					

INSPECTION REPORTS			
DATE	ITEM	REMARKS	INSPECTOR

USE SPACE BELOW FOR NOTES, FOLLOW-UP, ETC.

Form 100.3a (REVERSE SIDE OF ELECTRICAL PERMIT APPLICATION)

MECHANICAL PERMIT APPLICATION

Jurisdiction of WASHINGTON, IOWA

Applicant to complete numbered spaces only.

4

Job Address						
1	LEGAL DESCR.	LOT NO.	BLOCK	TRACT ☐ SEE ATTACHED SHEET)		OWNER / JOB ADDRESS
2	OWNER		MAIL ADDRESS	ZIP	PHONE	
3	CONTRACTOR		MAIL ADDRESS	PHONE	LICENSE NO.	
4	ARCHITECT OR DESIGNER		MAIL ADDRESS	PHONE	LICENSE NO.	
5	ENGINEER		MAIL ADDRESS	PHONE	LICENSE NO.	
6						
7	USE OF BUILDING					
8	CLASS OF WORK: ☐ NEW ☐ ADDITION ☐ ALTERATION ☐ REPAIR ☐ MOVE ☐ REMOVE					
9	DESCRIBE WORK:					

SPECIAL CONDITIONS:

APPLICATION ACCEPTED BY	PLANS CHECKED BY	APPROVED FOR ISSUANCE BY

NOTICE

THIS PERMIT BECOMES NULL AND VOID IF WORK OR CONSTRUCTION AUTHORIZED IS NOT COMMENCED WITHIN 180 DAYS, OR IF CONSTRUCTION OR WORK IS SUSPENDED OR ABANDONED FOR A PERIOD OF 180 DAYS AT ANY TIME AFTER WORK IS COMMENCED.

I HEREBY CERTIFY THAT I HAVE READ AND EXAMINED THIS APPLICATION AND KNOW SAME TO BE TRUE AND CORRECT. ALL PROVISIONS OF LAWS AND ORDINANCES GOVERNING THIS TYPE OF WORK WILL BE COMPLIED WITH WHETHER SPECIFIED HEREIN OR NOT. THE GRANTING OF A PERMIT DOES NOT PRESUME TO GIVE AUTHORITY TO VIOLATE OR CANCEL THE PROVISIONS OF ANY OTHER STATE OR LOCAL LAW REGULATING CONSTRUCTION OR THE PERFORMANCE OF CONSTRUCTION.

Signature of Contractor or Authorized Agent (Date)

Signature of Owner (If Owner Builder) (Date)

Type of Fuel: Oil ☐ Natural Gas ☐ LPG ☐

PERMIT FEES

No.	Type of Equipment	Fee
	Forced Air Systems—Btu/h M Ea.	$
	Gravity Systems—Btu/h M Ea.	
	Floor Furnaces	
	Wall Heaters	
	Unit Heaters	
	Gas-fired A.C. Units—Btu/h	
	Air-conditioning Units—Hp Ea.	
	Refrigeration Units—Hp Ea.	
	Boilers—Hp Ea.	
	Air-handling Unit C.F.M.	
	Evaporative Coolers	
	Ventilation Fan	
	Range Hood	
	Incinerator	
	Clothes Dryers	
	PERMIT	$
	TOTAL FEE	$

WHEN PROPERLY VALIDATED (IN THIS SPACE), THIS IS YOUR PERMIT

PERMIT FEE	+	ADD. FEES & PENALTIES	TOTAL FEES	VALIDATION	DATE	RECEIPT NUMBER

INSPECTION REPORTS			
DATE	ITEM	REMARKS	INSPECTOR

USE SPACE BELOW FOR NOTES, FOLLOW-UP, ETC.

Form 100.4a **(REVERSE SIDE OF MECHANICAL PERMIT APPLICATION)**

"HOW TO FILE A COMPLETE NOTICE OF INTENT"

For

NPDES General Permit No.1
for "Storm Water Discharge
Associated With Industrial Activity"

or

NPDES General Permit No.2
for " Storm Water Discharge
Associated with Industrial Activity
for Construction Activities"

or

NPDES General Permit No.3
for "Storm Water Discharge Associated with
Industrial Activity for Asphalt Plants,
Concrete Batch Plants, Rock Crushing Plants
and Construction Sand and Gravel Facilities"

In accordance with the Clean Water Act, all industrial facilities that discharge storm water meeting the definition of storm water associated with industrial activity must apply for coverage under a National Pollutant Discharge Elimination System (NPDES) permit.

These instructions are provided to assist activities that need to notify the Iowa Department of Natural Resources (IDNR) of their storm water discharge to be covered under Iowa's NPDES General Permit No. 1, General Permit No. 2 or General Permit No. 3.

The instructions are the same for all general permits. When a discharger provides a complete Notice of Intent to the IDNR, its storm water discharges will be subject to the terms and conditions of the appropriate general permit unless notified by the IDNR.

A pollution prevention plan is required for all storm water permits. The plan must be completed before submittal of the Notice of Intent. The plan should be kept on-site at the facility or construction site that generates the storm water discharge. Do not send the pollution prevention plan with the Notice of Intent.

To file a complete Notice of Intent you must provide the following items:

1. The completed Form 542-1415 entitled *"Notice of Intent for NPDES Coverage Under General Permit"*,
2. Proof of Public notification from the newspaper in the area with the highest circulation and,
3. Permit fee.

Each of these items is discussed in detail below and on the back side of this page.

Mail the completed application form 542-1415 with the proof of public notice and permit fee to the following address. **DO NOT** send the Pollution Prevention Plan with your Notice of Intent. **DO NOT** send the application form, fee payment or proof of public notice separately. Send them all together.

Storm Water Coordinator
Department of Natural Resources
502 E. 9th Street
Des Moines, Iowa 50319-0034

1. Proof of Public Notification

Iowa law requires dischargers to make public notice for seeking coverage under a general permit. The public notice must be published at least one day at your own expense in the newspaper with the largest circulation in the area where the discharge is located.

The wording to use in the public notice is specified as a rule of the IDNR and is included as a separate page for your convenience. This wording contains the minimum information that must be provided in the public notice. You must complete the blank portions with the specified information. You may add more information to the notice if you wish.

To determine which newspaper has the largest circulation, ask your local newspaper or call the Iowa Newspaper Association (INA) at (515) 244-2145 for circulation information. The INA is located at 319 E. Fifth Street, Des Moines, Iowa 50309.

When your Notice of Intent is sent to the IDNR, you **MUST** enclose a clipping of the public notice with the name of the newspaper and date published, or an affidavit from the newspaper with the clippings attached to demonstrate your public notification requirement. If the proof of public notice is not included with your application, the storm water permit authorization will **NOT** be issued.

2. Form 542-1415

In filling out the form, type or print legibly and complete both sides of the form.

Permit Information and Fee Options

Give permit information on the general permit for which you are applying and select a fee option.

Facility or Project Information

Enter the official or legal name of the facility or site. Enter the complete street address. If no street address exists, provide a geographic description (e.g., Intersection of 5th Street and 2nd Avenue or, at a minimum, the name of the street or road nearest the site), city, county, state and zip code. Do not use a PO

Box number. This is the address of the facility or construction site not the address of the owner or contact.

For General Permits No. 1 and No. 3, provide a four-digit SIC code that best represents the principal products or activities provided by the facility.

Contact Information

Provide the legal name of a contact person, firm, public organization or any other entity that owns or operates the facility or site. The name of the operator or contact may or may not be the same as the name of the facility. The operator is the legal entity that controls the facility's operation. Provide a mailing address (P.O. box numbers may be used). Include the city, state, zip code and telephone number for a contact person. All correspondence relating to the storm water permit, including the storm water permit authorization, will be sent to this address.

Facility Location or Location of Construction Site

Give the location by ¼ section (e.g., NW), section number, township number (e.g., T78N) and range number (e.g., R4W). The location information can be obtained from United States Geological Survey topographic maps, by calling 1-(888) ASK-USGS.

Owner Information

Enter the name, mailing address and telephone number of the owner of the facility.

Outfall Information

Provide an estimated start date the discharge did or is to commence, the name(s) of the receiving water(s), and check compliance conditions. All applicable compliance conditions listed must be met for the Notice of Intent to be considered complete.

The discharge start date is the date storm water discharge from industrial activity or construction activity (from a construction site that disturbs one acre or more or is part of a larger common plan of development that disturbs one acre or more) began or will begin to leave the property. If the discharge start date is before 10/1/92, the correct date to place in the blank is 10/1/92. This is the date the State of Iowa implemented the storm water permit requirements.

If an industrial facility was not initially required to obtain a storm water permit but changed operations so that later a storm water permit was or will be required, the discharge start date is the date that the change was made that necessitated the need for a storm water permit.

Provide the name(s) of the receiving water(s) to the first uniquely named river. Explain to where the storm water runoff will drain (e.g., unnamed waterway to road ditch to unnamed tributary to Mud Creek to Skunk River).

Compliance conditions

Check the compliance conditions that apply. A pollution prevention plan is required for all storm water permits. For General Permit No. 3 (if no soil disturbing activities will take place) and General Permit No. 1, the question regarding state or local sediment and erosion control plans does not apply. If you check no to any of the applicable compliance conditions, your application will not be approved.

General Permits No.2 and No 3

For construction sites that need a storm water discharge permit, in addition to the information required above, include a brief description of the project, estimated timetable for major activities and an estimate of the number of acres of the site on which soil will be disturbed.

For General Permit No. 3, identify if the facility is a portable plant.

Certification

The completed form must be signed by a qualified official. A qualified official is any of the following: owner, principal executive officer of at least the level of vice-president, general partner, general contractor (for construction sites), principal executive officer or ranking elected official (for publicly owned facilities).

The Notice of Intent will be returned and no permit issued if information on the form is incomplete.

3. Fees

There is a permit fee for each general permit. The fee schedule is the same for General Permit No. 1, No. 2 and No. 3.

The applicant has the option of paying an annual permit fee or a multi-year permit fee.

Annual permit fee	$175
3-year permit fee	$350
4-year permit fee	$525
5-year permit fee	$700

IMPORTANT - The storm water permit authorization will not be issued unless the proof of public notice and permit fee accompany the completed Notice of Intent.

If you need assistance contact the IDNR at (515) 281-6782 or (515) 281-7017.

IOWA DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION
NOTICE OF INTENT FOR NPDES COVERAGE UNDER GENERAL PERMIT

CASHIER'S USE ONLY
0253-542-SW08-0581

Name

No. 1 FOR "STORM WATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITY"

or

No. 2 FOR "STORM WATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITY FOR CONSTRUCTION ACTIVITIES"

or

No. 3 FOR "STORM WATER DISCHARGE ASSOCIATED WITH INDUSTRIAL ACTIVITY FOR ASPHALT PLANTS, CONCRETE BATCH PLANTS, ROCK CRUSHING PLANTS, AND CONSTRUCTION SAND AND GRAVEL FACILITIES."

PERMIT INFORMATION

Has this storm water discharge been previously permitted? ☐ Yes ☐ No

If yes, please list authorization number _____

Under what General Permit are you applying for coverage?

General Permit No. 1 ☐ General Permit No. 2 ☐ General Permit No. 3 ☐

PERMIT FEE OPTIONS

For coverage under the NPDES General Permit the following fees apply:

☐ Annual Permit Fee $175 (per year) Maximum coverage is one year.
☐ 3-year Permit Fee $350 Maximum coverage is three years.
☐ 4-year Permit Fee $525 Maximum coverage is four years.
☐ 5-year Permit Fee $700 Maximum coverage is five years.

Checks should be made payable to: Iowa Department of Natural Resources.

FACILITY OR PROJECT INFORMATION

Enter the name and full address/location (not mailing address) of the facility or project for which permit coverage is requested.

NAME:	STREET ADDRESS OF SITE:		
CITY:	COUNTY:	STATE:	ZIP CODE:

CONTACT INFORMATION

Give name, mailing address and telephone number of a contact person (Attach additional information on separate pages as needed). This will be the address to which all correspondence will be sent and to which all questions regarding your application and compliance with the permit will be directed.

NAME:		ADDRESS:	
CITY:	STATE:	ZIP CODE:	TELEPHONE ( )

Check the appropriate box to indicate the legal status of the operator of the facility.

☐ Federal ☐ State ☐ Public ☐ Private ☐ Other (specify) _____

SIC CODE (General Permit No. 1 & 3 Applicants Only) ☐

SIC code refers to Standard Industrial Classification code number used to classify establishments by type of economic activity.

FACILITY LOCATION OR LOCATION OF CONSTRUCTION SITE

Give the location by ¼ section, section, township, range, (e.g., NW, 7, T78N, R3W).

1/4 SECTION	SECTION	TOWNSHIP	RANGE

MAIL TO:

STORM WATER COORDINATOR
IOWA DEPARTMENT OF NATURAL RESOURCES
502 E 9TH ST
DES MOINES IA 50319-0034

OWNER INFORMATION

Enter the name and full address of the owner of the facility.

NAME:		ADDRESS:	
CITY:	STATE:	ZIP CODE:	TELEPHONE: ( )

OUTFALL INFORMATION

Discharge start date, i.e., when did/will the site begin operation or 10/1/92, whichever is later: _____

Is any storm water monitoring information available describing the concentration of pollutants in storm water discharges? ☐ Yes ☐ No

NOTE: Do not attach any storm water monitoring information with the application.

Receiving water(s) to the first uniquely named waterway in Iowa (e.g., road ditch to unnamed tributary to Mud Creek to South Skunk River):

Compliance With The Following Conditions:	Yes	No
Has the Storm Water Pollution Prevention Plan been developed prior to the submittal of this Notice of Intent and does the plan meet the requirements of the applicable General Permit? (do not submit the SWPPP with the application)	☐	☐
Will the Storm Water Pollution Prevention Plan comply with approved State (Section 161A.64, Code of Iowa) or local sediment and erosion plans? (for General Permit 2 only)	☐	☐
Has a public notice been published for at least one day, in the newspaper with the largest circulation in the area where the discharge is located, and is the proof of notice attached? (new applications only)	☐	☐

GENERAL PERMIT NO. 2 AND GENERAL PERMIT NO. 3 APPLICANTS COMPLETE THIS SECTION.

Description of Project (describe in one sentence what is being constructed):

For General Permit No. 3 - Is this facility to be moved this year? ☐ Yes ☐ No

Number of Acres of Disturbed Soil: _____
(Construction Activities Only)

Estimated Timetable For Activities / Projects, i.e., approximately when did/will the project begin and end:

CERTIFICATION – ALL APPLICATIONS MUST BE SIGNED

Only the following individuals may sign the certification: owner of site, principal executive officer of at least the level of vice-president of the company owning the site, a general partner of the company owning the site, principal executive officer or ranking elected official of the public entity owning the site, any of the above of the general contracting company for construction sites.

I certify under penalty of law that this document was prepared under my direction or supervision in accordance with a system designed to assure that qualified people properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, this information is to the best of my knowledge and belief, true, accurate, and complete. I further certify that the terms and conditions of the general permit will be met. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

NAME: (print or type)	TITLE AND COMPANY NAME OF SIGNATORY:
SIGNATURE:	DATE:

Instructions - To complete the public notice, fill in the blanks with the required information or select the appropriate response and send to the newspaper.

The public notice must be published at least one day at your own expense.

PUBLIC NOTICE OF STORM WATER DISCHARGE

_____ plans to submit a Notice of Intent to the
(*applicant name*)

Iowa Department of Natural Resources to be covered under the NPDES General Permit

_____

(select the appropriate general permit - No. 1 "Storm Water Discharge Associated with Industrial Activity", General Permit No. 2 "Storm Water Discharge Associated with Industrial Activity for Construction Activities, or General Permit No. 3 "Storm Water Discharge Associated With Industrial Activity From Asphalt Plants, Concrete Batch Plants, Rock Crushing Plants, And Construction Sand And Gravel Facilities")

The storm water discharge will be from _____
(description of industrial activity)

located in _____
(1/4 section, section, township, range, county)

Storm water will be discharged from _____ point source(s) and will be discharged to
(number)

the following streams: _____
(stream name(s))

Comments may be submitted to the Storm Water Discharge Coordinator, Iowa Department of Natural Resources, Environmental Protection Division, 502 E. 9th Street, Des Moines, IA 50319-0034. The public may review the Notice of Intent from 8:00am to 4:30pm, Monday through Friday, at the above address after it has been received by the department.

PLUMBING PERMIT APPLICATION

Jurisdiction of WASHINGTON, IOWA

Applicant to complete numbered spaces only.

2

Job Address						OWNER	JOB ADDRESS
1	LEGAL DESCR	LOT NO.	BLOCK	TRACT ☐ SEE ATTACHED SHEET			
2	OWNER		MAIL ADDRESS	ZIP	PHONE		
3	CONTRACTOR		MAIL ADDRESS	PHONE	LICENSE NO.		
4	ARCHITECT OR DESIGNER		MAIL ADDRESS	PHONE	LICENSE NO.		
5	ENGINEER		MAIL ADDRESS	PHONE	LICENSE NO.		
6							
7	USE OF BUILDING						
8	CLASS OF WORK: ☐ NEW ☐ ADDITION ☐ ALTERATION ☐ REPAIR ☐ MOVE ☐ REMOVE						
9	DESCRIBE WORK.						

SPECIAL CONDITIONS.

APPLICATION ACCEPTED BY	PLANS CHECKED BY	APPROVED FOR ISSUANCE BY

NOTICE

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I HEREBY CERTIFY THAT I HAVE READ AND EXAMINED THIS APPLICATION AND KNOW SAME TO BE TRUE AND CORRECT. ALL PROVISIONS OF LAWS AND ORDINANCES GOVERNING THIS TYPE OF WORK WILL BE COMPLIED WITH WHETHER SPECIFIED HEREIN OR NOT. THE GRANTING OF A PERMIT DOES NOT PRESUME TO GIVE AUTHORITY TO VIOLATE OR CANCEL THE PROVISIONS OF ANY OTHER STATE OR LOCAL LAW REGULATING CONSTRUCTION OR THE PERFORMANCE OF CONSTRUCTION

Signature of Contractor or Authorized Agent (Date)

Signature of Owner (If Owner Builder) (Date)

No.	Type of Fixture or Item	Fee	
	WATER CLOSET (TOILET)	$	
	BATHTUB		
	LAVATORY (WASH BASIN)		
	SHOWER		
	KITCHEN SINK & DISPOSAL		
	DISHWASHER		
	LAUNDRY TRAY		
	CLOTHES WASHER		
	URINAL		
	DRINKING FOUNTAIN		
	FLOOR—SINK OR DRAIN		
	SLOP SINK		
	SEWER		
	CESSPOOL		
	SEPTIC TANK AND PIT		
	WATER HEATER		
	WASTE INTERCEPTOR		
	WATER PIPING & TREATING EQUIPMENT		
	LAWN SPRINKLER SYSTEM		
	VACUUM BREAKERS		
	GAS SYSTEMS: NUMBER OF OUTLETS		
		PERMIT	$
		TOTAL FEE	$

WHEN PROPERLY VALIDATED (IN THIS SPACE), THIS IS YOUR PERMIT

PERMIT FEE	+	ADD. FEES & PENALTIES	TOTAL FEES	VALIDATION	DATE	RECEIPT NUMBER

INSPECTION REPORTS			
DATE	ITEM	REMARKS	INSPECTOR

USE SPACE BELOW FOR NOTES, FOLLOW-UP, ETC.

Form 100.2a **(REVERSE SIDE OF PLUMBING PERMIT APPLICATION)**

City of Washington, Iowa
Application for Sign Permit

Permit No..... Zoning District .....

Permit Fee $..... Date .....

....

Owner Address

Cost of sign will be: $.....

Primary use for this property: RESIDENCE ☐ COMMERCIAL ☐ INDUSTRIAL ☐

Describe use:.....

Lot Dimensions:.....

Total square feet of all signs visible from public way.....

Location of all signs visible from public way.....

Height of all signs .....

Type of construction materials.....

Will sign have any electrical component? YES ☐ NO ☐

The undersigned owner or authorized agent of the owner of the property described herein requests permission to use the property or erect the improvements in the location and as set forth in detail above. The owner or authorized agent agrees that the improvements and use of the property will be in accordance with the Ordinances of the City of Washington, and the laws of the State of Iowa which apply to the improvement and its use. The owner or authorized agent subscribes to the statements herein as a basis for the issuance of the zoning certificate.

....

Owner or Authorized Agent Address Date

ACTION ON APPLICATION as per §18.1 of the Municipal Code:

Approved ☐ Denied ☐ Not in conformity with the following provision(s) of the Zoning Ordinance:

IDOT approval required? ☐ **Advised Citizen to contact IDOT** ☐

.....

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.....

PERMIT FEE $ .....
PAID $ .....

PERMIT NO. .....
DATE .....

City of Washington, Iowa

STREET EXCAVATION PERMIT

LOCATION: .....

SIZE OF OPENING: ..... DEPTH:..... EXISTING SURFACE: .....

REASON FOR EXCAVATION: .....

.....

STARTING DATE: ____/____/_____ EXPECTED COMPLETION DATE: ____/____/_____

If completion date is more than 90 days after start date, state reason (over).

COMPLETION DATE: ____/____/_____

✦✦✦✦✦✦✦✦✦✦✦✦✦✦✦✦✦✦✦

Under the authority of §135.09 of the Municipal Code of the City of Washington, the undersigned is granted permission to excavate within the City right-of-way as described above and in compliance with the following provisions.

All work shall be done to the satisfaction of the City Engineer or his representative. All excavations shall meet the City of Washington *Standard Specifications for Pavement and Sewer Installation and Repair.* Edges of paved areas shall be sawed to provide a straight edge or removed to the nearest joint. All joints shall be properly sealed. Any temporary surfacing shall be inspected regularly and kept in a safe and smooth condition. All surfaces shall be restored as follows:

P.C. Concrete:	Replace with C-4 PCC, minimum 7" thick, 1" greater than surrounding surface
Asphalt:	Match existing thickness of ACC and meet PCC requirements.
Seal Coat:	City's option: 2" Asphalt over 4" crushed stone base or 4" crushed stone + cash settlement.
Sidewalk:	4" C-4 PCC
Gravel:	4" Class A crushed stone.
Grass:	Seed or sod as necessary.

The undersigned shall provide, install and maintain signs, barricades, flashers, etc. in conformance with the MUTCD (*Manual on Uniform Traffic Control Devices*) to control traffic and fencing as necessary to keep unauthorized persons away from hazardous areas.

The undersigned agrees to notify CONTACT PERSON before starting and upon completion.

The undersigned guarantees his work for a period of 2 years against defects in workmanship (including trench settlement) and material and will replace any work found to be defective within that time period without charge to the City.

The undersigned further agrees to hold harmless and indemnify the City of Washington and City officials and employees against any liability sustained by reason of his negligent acts, errors, or omissions in connection with the above described work.

✦✦✦✦✦✦✦✦✦✦✦✦✦✦✦✦✦✦✦

Applicant: ..... Date: .....

Address:.....

Signature of Authorized Agent: ..... Phone:.....

Issued by:..... Title: ..... Date .....

Comments:.....

..... CONTACT PERSON .....

(reverse side of Street Excavation Permit)

INSPECTION REPORTS			
ITEM	DATE	REMARKS	INSPECTOR
Size guidelines			
Placement			
Compaction			
Reinforcing			
Sealant			
Asphalt placement			
Final			
2-year inspection			

USE SPACE BELOW FOR NOTES, FOLLOW-UP ETC.

City of Washington

Building Permit Application

****DO NOT START ANY CONSTRUCTION PRIOR TO RECEIVING A ZONING PERMIT****

Applicant's Signature: _____

Permit Amt. $_____ Permit # _____

Valuation = $_____

Authorized by: _____

Date Issued: _____/_____/_____

SECTION I. GENERAL INFORMATION Date: ____/____/____

Property Owner: _____ Phone Number: _____

Mailing Address of Property Owner: _____

SECTION II. SITE & CONSTRUCTION INFORMATION ***Zoning District*** _____

Address of site: _____ Use of Property _____

Change in use: ☐ yes ☐ no If yes, from _____ _____ to _____ _____

Type of Construction _____ Occupancy Group _____ Division _____ Max. Occ. Load _____

Class of work: ☐ New ☐ Addition ☐ Alteration ☐ Repair ☐ Move ☐ Remove No. of Dwelling Units _____

Setbacks: Front yard _____ Side Yards 1) _____ 2) _____ Rear Yard _____ No.of Stories _____

Height of structure _____ ft. Proposed Construction Dimensions _____x_____ =_____SF or LF

Fire Sprinklers Required: ☐ yes ☐ no Describe Work: _____

SECTION III. ARCHITECT OR ENGINEER INFORMATION Plans Turned In: ____ / ____ /____

Architect / Engineer: _____ Phone Number: _____

Address: _____ Cell Phone Number: _____

St. License Number: _____ * The State of Iowa requires all Architects and Engineers be licensed with the State of Iowa

SECTION IV. CONTRACTOR INFORMATION

Contractor: _____ Phone Number: _____

Contractor Address: _____ Cell Phone Number: _____

Contractor's St. Reg. Number _____ * The State of Iowa requires all contractors to be registered with the State of Iowa

Subcontractor's Information: *No permit will be approved unless required subcontractors are listed below.

Electrical _____ State Reg. No. _____ Permit No. _____

Plumbing _____ State Reg. No. _____ Permit No. _____

Mechanical _____ State Reg. No. _____ Permit No. _____

Concrete _____ State Reg. No. _____ Permit No. _____

Sewer _____ State Reg. No. _____ Permit No. _____

SECTION IV.. ZONING ADMINISTRATOR

Does the proposed construction and use of it comply with City Zoning Ordinances? ☐ Yes ☐ No

If "No", explain _____

Date ___/___/___ Signed _____

Setback / pin verification: Preconstruction _____ ___/___/___

Post construction _____ ___/___/___ Plot plan updated: ☐ Yes ☐ N/A

SECTION V: OTHER PERMITS REQUIRED

☐ Electrical ☐ Plumbing ☐ Mechanical ☐ Excavation ☐ Demolition

SECTION VI. PLUMBING CODE INSPECTOR

Does the proposed construction meet plumbing code requirements? ☐ Yes ☐ No

If "No", explain _____

Date _____ Signed _____

SECTION VII. ELECTRICAL CODE INSPECTOR

Does the proposed construction meet electrical code requirements? ☐ Yes ☐ No

If "No", explain _____

_____

_____

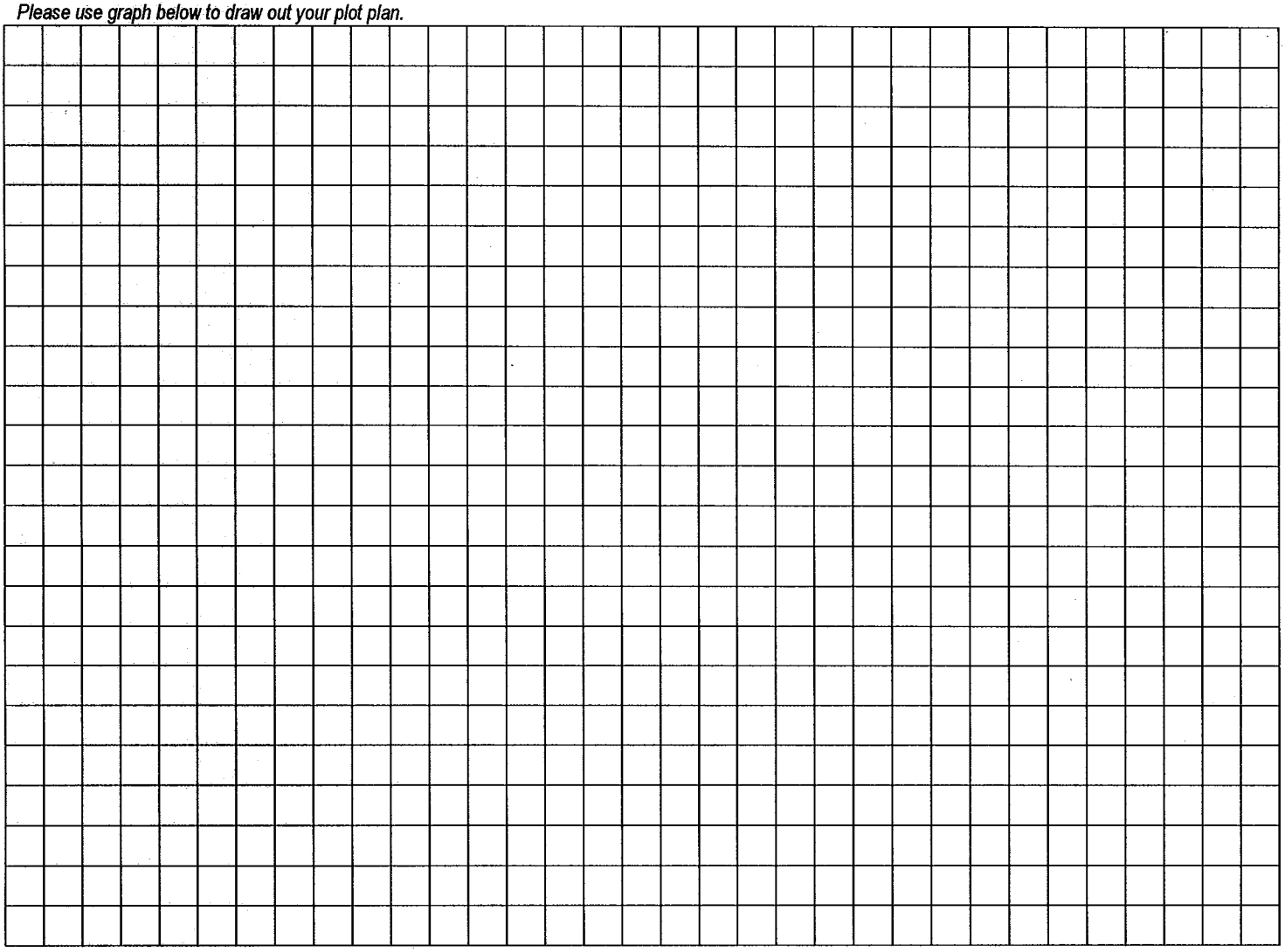
Date _____ Signed _____

City of Washington - Plot Plan Form

Building/Zoning Department

Property Address: _____ Date Submitted: _____

Please use graph below to draw out your plot plan.



I certify that the above Plot Plan is a true representation of this lot and accurately shows all dimensions, easements and proposed and existing structures on said lot. Any deviation from this approved Plot Plan may void the Building Permit and/or zoning approval.

SIGNATURE OF OWNER/CONTRACTOR _____

※ No accessory building or structure shall be erected in any yard other than a rear yard and it shall occupy less than thirty (30%) of the required rear yard.

※ Structures may not be located on or over utility easements. The location of the sewer lateral should be shown on the site plan when applicable. The property owner and contractor are responsible for checking and locating all utilities and easement restrictions. *(The city does not keep records of private sewer and water lines on private property).*

※ Call "Iowa One Call" at 1-800-292-8989 to locate all public utilities *(water, sewer, cable, gas, electric and phone)* on your property before you begin construction.

IOWA DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION
NOTICE OF INTENT FOR NPDES COVERAGE UNDER GENERAL PERMIT

CASHIER'S USE ONLY
0253-542-SW08-0581

Name

No. 1 FOR "STORM WATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITY"

or

No. 2 FOR "STORM WATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITY FOR CONSTRUCTION ACTIVITIES"

or

No. 3 FOR "STORM WATER DISCHARGE ASSOCIATED WITH INDUSTRIAL ACTIVITY FOR ASPHALT PLANTS, CONCRETE BATCH PLANTS, ROCK CRUSHING PLANTS, AND CONSTRUCTION SAND AND GRAVEL FACILITIES."

PERMIT INFORMATION

Has this storm water discharge been previously permitted? ☐ Yes ☐ No

If yes, please list authorization number _____

Under what General Permit are you applying for coverage?

General Permit No. 1 ☐ General Permit No. 2 ☐ General Permit No. 3 ☐

PERMIT FEE OPTIONS

For coverage under the NPDES General Permit the following fees apply:

☐ Annual Permit Fee $175 (per year) Maximum coverage is one year.
☐ 3-year Permit Fee $350 Maximum coverage is three years.
☐ 4-year Permit Fee $525 Maximum coverage is four years.
☐ 5-year Permit Fee $700 Maximum coverage is five years.

Checks should be made payable to: Iowa Department of Natural Resources.

FACILITY OR PROJECT INFORMATION

Enter the name and full address/location (not mailing address) of the facility or project for which permit coverage is requested.

NAME:	STREET ADDRESS OF SITE:		
CITY:	COUNTY:	STATE:	ZIP CODE:

CONTACT INFORMATION

Give name, mailing address and telephone number of a contact person (Attach additional information on separate pages as needed). This will be the address to which all correspondence will be sent and to which all questions regarding your application and compliance with the permit will be directed.

NAME:		ADDRESS:	
CITY:	STATE:	ZIP CODE:	TELEPHONE ( )

Check the appropriate box to indicate the legal status of the operator of the facility.

☐ Federal ☐ State ☐ Public ☐ Private ☐ Other (specify) _____

SIC CODE (General Permit No. 1 & 3 Applicants Only) ☐

SIC code refers to Standard Industrial Classification code number used to classify establishments by type of economic activity.

FACILITY LOCATION OR LOCATION OF CONSTRUCTION SITE

Give the location by ¼ section, section, township, range, (e.g., NW, 7, T78N, R3W).

1/4 SECTION	SECTION	TOWNSHIP	RANGE

MAIL TO:

STORM WATER COORDINATOR
IOWA DEPARTMENT OF NATURAL RESOURCES
502 E 9TH ST
DES MOINES IA 50319-0034

OWNER INFORMATION

Enter the name and full address of the owner of the facility.

NAME:		ADDRESS:	
CITY:	STATE:	ZIP CODE:	TELEPHONE: ( )

OUTFALL INFORMATION

Discharge start date, i.e., when did/will the site begin operation or 10/1/92, whichever is later: _____

Is any storm water monitoring information available describing the concentration of pollutants in storm water discharges? ☐ Yes ☐ No

NOTE: Do not attach any storm water monitoring information with the application.

Receiving water(s) to the first uniquely named waterway in Iowa (e.g., road ditch to unnamed tributary to Mud Creek to South Skunk River):

Compliance With The Following Conditions:	Yes	No
Has the Storm Water Pollution Prevention Plan been developed prior to the submittal of this Notice of Intent and does the plan meet the requirements of the applicable General Permit? (do not submit the SWPPP with the application)	☐	☐
Will the Storm Water Pollution Prevention Plan comply with approved State (Section 161A.64, Code of Iowa) or local sediment and erosion plans? (for General Permit 2 only)	☐	☐
Has a public notice been published for at least one day, in the newspaper with the largest circulation in the area where the discharge is located, and is the proof of notice attached? (new applications only)	☐	☐

GENERAL PERMIT NO. 2 AND GENERAL PERMIT NO. 3 APPLICANTS COMPLETE THIS SECTION.

Description of Project (describe in one sentence what is being constructed):

For General Permit No. 3 - Is this facility to be moved this year? ☐ Yes ☐ No

Number of Acres of Disturbed Soil: _____
(Construction Activities Only)

Estimated Timetable For Activities / Projects, i.e., approximately when did/will the project begin and end:

CERTIFICATION – ALL APPLICATIONS MUST BE SIGNED

Only the following individuals may sign the certification: owner of site, principal executive officer of at least the level of vice-president of the company owning the site, a general partner of the company owning the site, principal executive officer or ranking elected official of the public entity owning the site, any of the above of the general contracting company for construction sites.

I certify under penalty of law that this document was prepared under my direction or supervision in accordance with a system designed to assure that qualified people properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, this information is to the best of my knowledge and belief, true, accurate, and complete. I further certify that the terms and conditions of the general permit will be met. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

NAME: (print or type)	TITLE AND COMPANY NAME OF SIGNATORY:
SIGNATURE:	DATE:

Instructions - To complete the public notice, fill in the blanks with the required information or select the appropriate response and send to the newspaper.

The public notice must be published at least one day at your own expense.

PUBLIC NOTICE OF STORM WATER DISCHARGE

_____ plans to submit a Notice of Intent to the
(*applicant name*)

Iowa Department of Natural Resources to be covered under the NPDES General Permit

_____

(select the appropriate general permit - No. 1 "Storm Water Discharge Associated with Industrial Activity", General Permit No. 2 "Storm Water Discharge Associated with Industrial Activity for Construction Activities, or General Permit No. 3 "Storm Water Discharge Associated With Industrial Activity From Asphalt Plants, Concrete Batch Plants, Rock Crushing Plants, And Construction Sand And Gravel Facilities")

The storm water discharge will be from _____
(description of industrial activity)

located in _____
(1/4 section, section, township, range, county)

Storm water will be discharged from _____ point source(s) and will be discharged to
(number)

the following streams: _____
(stream name(s))

Comments may be submitted to the Storm Water Discharge Coordinator, Iowa Department of Natural Resources, Environmental Protection Division, 502 E. 9th Street, Des Moines, IA 50319-0034. The public may review the Notice of Intent from 8:00am to 4:30pm, Monday through Friday, at the above address after it has been received by the department.

PLUMBING PERMIT APPLICATION

Jurisdiction of WASHINGTON, IOWA

Applicant to complete numbered spaces only.

2

Job Address						OWNER	JOB ADDRESS
1	LEGAL DESCR	LOT NO.	BLOCK	TRACT ☐ SEE ATTACHED SHEET			
2	OWNER		MAIL ADDRESS	ZIP	PHONE		
3	CONTRACTOR		MAIL ADDRESS	PHONE	LICENSE NO.		
4	ARCHITECT OR DESIGNER		MAIL ADDRESS	PHONE	LICENSE NO.		
5	ENGINEER		MAIL ADDRESS	PHONE	LICENSE NO.		
6							
7	USE OF BUILDING						
8	CLASS OF WORK: ☐ NEW ☐ ADDITION ☐ ALTERATION ☐ REPAIR ☐ MOVE ☐ REMOVE						
9	DESCRIBE WORK.						

SPECIAL CONDITIONS.

APPLICATION ACCEPTED BY	PLANS CHECKED BY	APPROVED FOR ISSUANCE BY

NOTICE

THIS PERMIT BECOMES NULL AND VOID IF WORK OR CONSTRUCTION AUTHORIZED IS NOT COMMENCED WITHIN 180 DAYS, OR IF CONSTRUCTION OR WORK IS SUSPENDED OR ABANDONED FOR A PERIOD OF 180 DAYS AT ANY TIME AFTER WORK IS COMMENCED.

I HEREBY CERTIFY THAT I HAVE READ AND EXAMINED THIS APPLICATION AND KNOW SAME TO BE TRUE AND CORRECT. ALL PROVISIONS OF LAWS AND ORDINANCES GOVERNING THIS TYPE OF WORK WILL BE COMPLIED WITH WHETHER SPECIFIED HEREIN OR NOT. THE GRANTING OF A PERMIT DOES NOT PRESUME TO GIVE AUTHORITY TO VIOLATE OR CANCEL THE PROVISIONS OF ANY OTHER STATE OR LOCAL LAW REGULATING CONSTRUCTION OR THE PERFORMANCE OF CONSTRUCTION

Signature of Contractor or Authorized Agent (Date)

Signature of Owner (If Owner Builder) (Date)

No.	Type of Fixture or Item	Fee	
	WATER CLOSET (TOILET)	$	
	BATHTUB		
	LAVATORY (WASH BASIN)		
	SHOWER		
	KITCHEN SINK & DISPOSAL		
	DISHWASHER		
	LAUNDRY TRAY		
	CLOTHES WASHER		
	URINAL		
	DRINKING FOUNTAIN		
	FLOOR—SINK OR DRAIN		
	SLOP SINK		
	SEWER		
	CESSPOOL		
	SEPTIC TANK AND PIT		
	WATER HEATER		
	WASTE INTERCEPTOR		
	WATER PIPING & TREATING EQUIPMENT		
	LAWN SPRINKLER SYSTEM		
	VACUUM BREAKERS		
	GAS SYSTEMS: NUMBER OF OUTLETS		
		PERMIT	$
		TOTAL FEE	$

WHEN PROPERLY VALIDATED (IN THIS SPACE), THIS IS YOUR PERMIT

PERMIT FEE	+	ADD. FEES & PENALTIES	TOTAL FEES	VALIDATION	DATE	RECEIPT NUMBER

INSPECTION REPORTS			
DATE	ITEM	REMARKS	INSPECTOR

USE SPACE BELOW FOR NOTES, FOLLOW-UP, ETC.

Form 100.2a **(REVERSE SIDE OF PLUMBING PERMIT APPLICATION)**

City of Washington, Iowa
Application for Sign Permit

Permit No..... Zoning District .....

Permit Fee $..... Date .....

....

Owner Address

Cost of sign will be: $.....

Primary use for this property: RESIDENCE ☐ COMMERCIAL ☐ INDUSTRIAL ☐

Describe use:.....

Lot Dimensions:.....

Total square feet of all signs visible from public way.....

Location of all signs visible from public way.....

Height of all signs .....

Type of construction materials.....

Will sign have any electrical component? YES ☐ NO ☐

The undersigned owner or authorized agent of the owner of the property described herein requests permission to use the property or erect the improvements in the location and as set forth in detail above. The owner or authorized agent agrees that the improvements and use of the property will be in accordance with the Ordinances of the City of Washington, and the laws of the State of Iowa which apply to the improvement and its use. The owner or authorized agent subscribes to the statements herein as a basis for the issuance of the zoning certificate.

....

Owner or Authorized Agent Address Date

ACTION ON APPLICATION as per §18.1 of the Municipal Code:

Approved ☐ Denied ☐ Not in conformity with the following provision(s) of the Zoning Ordinance:

IDOT approval required? ☐ **Advised Citizen to contact IDOT** ☐

.....

.....

.....

.....

.....

.....

.....

.....

PERMIT FEE $ .....
PAID $ .....

PERMIT NO. .....
DATE .....

City of Washington, Iowa

STREET EXCAVATION PERMIT

LOCATION: .....

SIZE OF OPENING: ..... DEPTH:..... EXISTING SURFACE: .....

REASON FOR EXCAVATION: .....

.....

STARTING DATE: ____/____/_____ EXPECTED COMPLETION DATE: ____/____/_____

If completion date is more than 90 days after start date, state reason (over).

COMPLETION DATE: ____/____/_____

✦✦✦✦✦✦✦✦✦✦✦✦✦✦✦✦✦✦✦

Under the authority of §135.09 of the Municipal Code of the City of Washington, the undersigned is granted permission to excavate within the City right-of-way as described above and in compliance with the following provisions.

All work shall be done to the satisfaction of the City Engineer or his representative. All excavations shall meet the City of Washington *Standard Specifications for Pavement and Sewer Installation and Repair.* Edges of paved areas shall be sawed to provide a straight edge or removed to the nearest joint. All joints shall be properly sealed. Any temporary surfacing shall be inspected regularly and kept in a safe and smooth condition. All surfaces shall be restored as follows:

P.C. Concrete:	Replace with C-4 PCC, minimum 7" thick, 1" greater than surrounding surface
Asphalt:	Match existing thickness of ACC and meet PCC requirements.
Seal Coat:	City's option: 2" Asphalt over 4" crushed stone base or 4" crushed stone + cash settlement.
Sidewalk:	4" C-4 PCC
Gravel:	4" Class A crushed stone.
Grass:	Seed or sod as necessary.

The undersigned shall provide, install and maintain signs, barricades, flashers, etc. in conformance with the MUTCD (*Manual on Uniform Traffic Control Devices*) to control traffic and fencing as necessary to keep unauthorized persons away from hazardous areas.

The undersigned agrees to notify CONTACT PERSON before starting and upon completion.

The undersigned guarantees his work for a period of 2 years against defects in workmanship (including trench settlement) and material and will replace any work found to be defective within that time period without charge to the City.

The undersigned further agrees to hold harmless and indemnify the City of Washington and City officials and employees against any liability sustained by reason of his negligent acts, errors, or omissions in connection with the above described work.

✦✦✦✦✦✦✦✦✦✦✦✦✦✦✦✦✦✦✦

Applicant: ..... Date: .....

Address:.....

Signature of Authorized Agent: ..... Phone:.....

Issued by:..... Title: ..... Date .....

Comments:.....

..... CONTACT PERSON .....

(reverse side of Street Excavation Permit)

INSPECTION REPORTS			
ITEM	DATE	REMARKS	INSPECTOR
Size guidelines			
Placement			
Compaction			
Reinforcing			
Sealant			
Asphalt placement			
Final			
2-year inspection			

USE SPACE BELOW FOR NOTES, FOLLOW-UP ETC.

City of Washington

Building Permit Application

****DO NOT START ANY CONSTRUCTION PRIOR TO RECEIVING A ZONING PERMIT****

Applicant's Signature: _____

Permit Amt. $_____ Permit # _____

Valuation = $_____

Authorized by: _____

Date Issued: _____/_____/_____

SECTION I. GENERAL INFORMATION Date: ____/____/____

Property Owner: _____ Phone Number: _____

Mailing Address of Property Owner: _____

SECTION II. SITE & CONSTRUCTION INFORMATION ***Zoning District*** _____

Address of site: _____ Use of Property _____

Change in use: ☐ yes ☐ no If yes, from _____ _____ to _____ _____

Type of Construction _____ Occupancy Group _____ Division _____ Max. Occ. Load _____

Class of work: ☐ New ☐ Addition ☐ Alteration ☐ Repair ☐ Move ☐ Remove No. of Dwelling Units _____

Setbacks: Front yard _____ Side Yards 1) _____ 2) _____ Rear Yard _____ No.of Stories _____

Height of structure _____ ft. Proposed Construction Dimensions _____x_____ =_____SF or LF

Fire Sprinklers Required: ☐ yes ☐ no Describe Work: _____

SECTION III. ARCHITECT OR ENGINEER INFORMATION Plans Turned In: ____ / ____ /____

Architect / Engineer: _____ Phone Number: _____

Address: _____ Cell Phone Number: _____

St. License Number: _____ * The State of Iowa requires all Architects and Engineers be licensed with the State of Iowa

SECTION IV. CONTRACTOR INFORMATION

Contractor: _____ Phone Number: _____

Contractor Address: _____ Cell Phone Number: _____

Contractor's St. Reg. Number _____ * The State of Iowa requires all contractors to be registered with the State of Iowa

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Mechanical _____ State Reg. No. _____ Permit No. _____

Concrete _____ State Reg. No. _____ Permit No. _____

Sewer _____ State Reg. No. _____ Permit No. _____

SECTION IV.. ZONING ADMINISTRATOR

Does the proposed construction and use of it comply with City Zoning Ordinances? ☐ Yes ☐ No

If "No", explain _____

Date ___/___/___ Signed _____

Setback / pin verification: Preconstruction _____ ___/___/___

Post construction _____ ___/___/___ Plot plan updated: ☐ Yes ☐ N/A

SECTION V: OTHER PERMITS REQUIRED

☐ Electrical ☐ Plumbing ☐ Mechanical ☐ Excavation ☐ Demolition

SECTION VI. PLUMBING CODE INSPECTOR

Does the proposed construction meet plumbing code requirements? ☐ Yes ☐ No

If "No", explain _____

Date _____ Signed _____

SECTION VII. ELECTRICAL CODE INSPECTOR

Does the proposed construction meet electrical code requirements? ☐ Yes ☐ No

If "No", explain _____

_____

_____

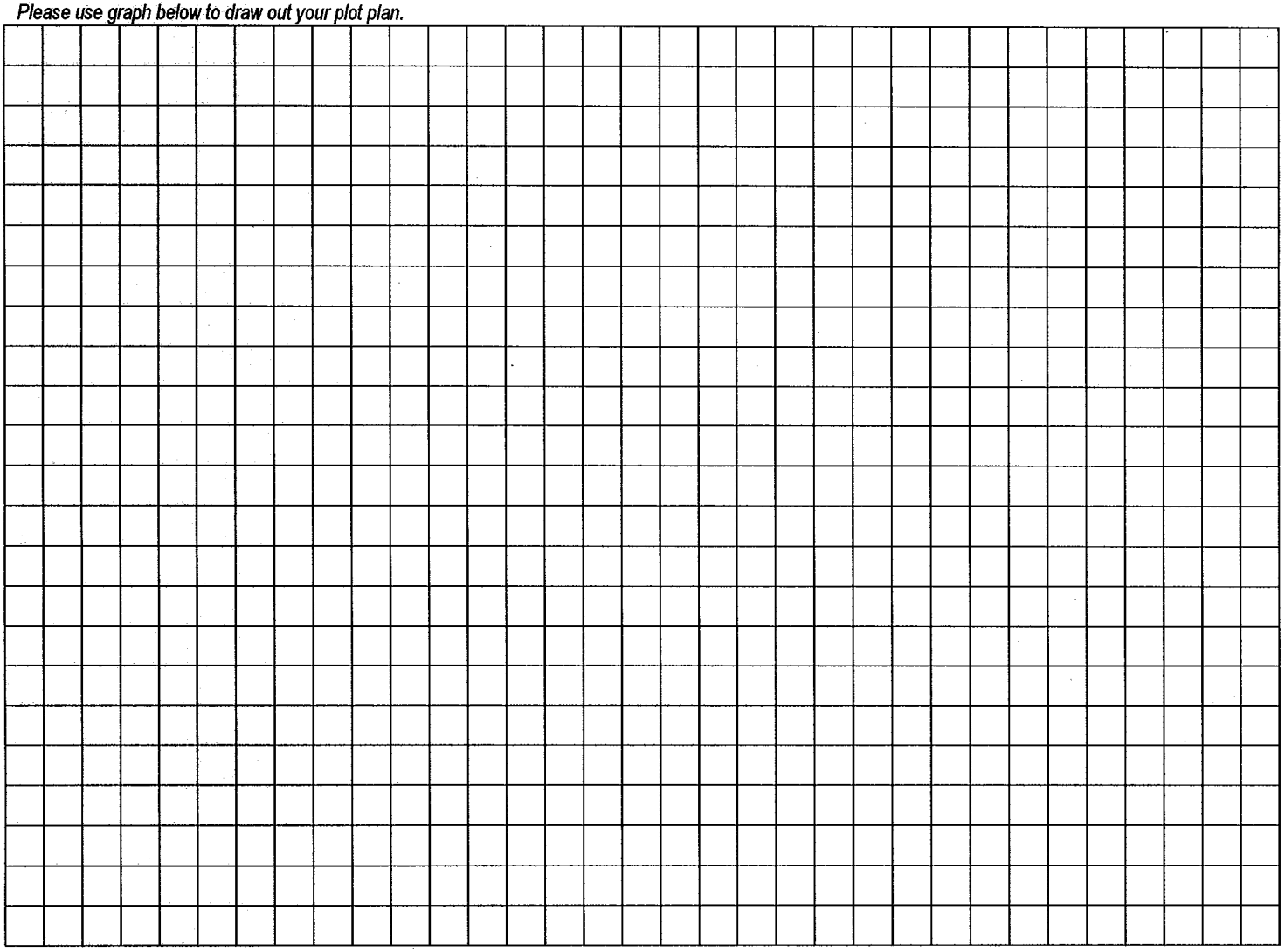
Date _____ Signed _____

City of Washington - Plot Plan Form

Building/Zoning Department

Property Address: _____ Date Submitted: _____

Please use graph below to draw out your plot plan.



I certify that the above Plot Plan is a true representation of this lot and accurately shows all dimensions, easements and proposed and existing structures on said lot. Any deviation from this approved Plot Plan may void the Building Permit and/or zoning approval.

SIGNATURE OF OWNER/CONTRACTOR _____

※ No accessory building or structure shall be erected in any yard other than a rear yard and it shall occupy less than thirty (30%) of the required rear yard.

※ Structures may not be located on or over utility easements. The location of the sewer lateral should be shown on the site plan when applicable. The property owner and contractor are responsible for checking and locating all utilities and easement restrictions. *(The city does not keep records of private sewer and water lines on private property).*

※ Call "Iowa One Call" at 1-800-292-8989 to locate all public utilities *(water, sewer, cable, gas, electric and phone)* on your property before you begin construction.

Appendix 1.7

		Plan A. Wellness Park with YMCA and Water tower		Plan B. Wellness Park without YMCA, with Water tower		Plan C. Wellness Park without water tower, with YMCA		Plan D. Wellness park without water tower YMCA	
	Weight	Assigned	Weighed	Assigned	Weighted	Assigned	Weighted	Assigned	Weighted
Cost	2	1	2	1	2	2	4	4	8
Overall Land Use	2	5	10	2	4	2	4	1	2
Aesthetics	1	3	3	2	2	4	4	5	5
Recreational Space	3	3	9	4	12	4	12	5	15
Benefit to Community	4	4	16	1	4	2	8	2	8
		Total Score	**40**		**24**		**32**		**38**

Appendix 1.8

SVPA Architects Inc.

CARL A. NELSON & CO. NELSON "Building Solutions Since 1913"

2/10/2014

Washington YMCA — **Programming Phase**

Description		Square Footage Range Existing	Proposed
1) Administration			
Control Desk		231	160
Director Office		**105**	**100**
Business Office		**119**	**120**
Fitness Office		**100**	**100**
Membership Office			**100**
Community Service Office		**120**	**120**
Open Office/Copy (3 cubicals)		**na**	**400**
Laundry		**323**	**300**
Conference/Break Room		na	0
Subtotal:		998	1,400
2) Community Collaboration Space	(Alternate/Future)		
Exam/Clinic Rooms (2 @ 120 s.f.)	300	na	0
Therapy Room	2,400	na	0
Massage (1)	200	120	0
Waiting / Reception / Check-in	300	na	0
Subtotal:	**3,200**	**120**	**0**
3) Aquatics/Natarorium			
Lap Pool (4-Lane)		**1,201**	**2,400**
Family Pool		na	1,720
Hot Tub Spa		na	500
Sauna/Steam Room		**na**	**500**
Pool Equipment		**143**	**600**
Aquatic Office		**132**	**200**
Deck/Seating (300 patrons)		**1,239**	**4,100**
Existing Seating		387	
Subtotal:		2,715	10,020

3) Fitness			
Cardio		**1,423**	**1,700**
Strength		**914**	**1,400**
Free Weights		**614**	**1,000**
Stretching		na	200
Subtotal:		2,951	4,300
4) Program Studios			
Areobic/Fitness Classes (Rubberized)		1,108	1,500
Spinning		474	600
Subtotal:		1,582	2,100
5) Gymnasium			
Main/Game Gym (H.S. competition)		**3,509**	**6,600**
Family/Youth Gym (Half gym)		**na**	**2,800**
Subtotal:		3,509	9,400
6) Walking/Running Track			
Track - Elevated over both Gyms		na	3,000
Subtotal:		0	3,000
7) Racquetball			
Court (remain at existing location)		1,720	0
Second Court/viewing (Future)		na	0
Viewing / Locker		581	0
Subtotal:		2,301	0
8) Locker Rooms			
Family Changing (2)		na	333
Swim Team Locker			367
Women Locker/Fitness Area		2,566	950
Men Locker/Fitness Area		3,377	950
Subtotal:		5,943	2,600

9) Day Care & Child Watch			
Child Watch (4-6 kids)	594	500	
Infant Care w/ (1) Adult Restroom (8 kids)	520	0	
Transitional w/ Restroom	789	0	
Toddler Care w/ Restroom (10 kids)	na	0	
Preschool Rooms (2) w/ Restroom	856	0	
Childrens Office	80	0	
Laundry / Storage	160	0	
Kitchette	188	na	
Subtotal:	3,187	500	
10) Community Space			
Lobby/Social Gathering	609	800	
Community Room (sim to Indianola)	1,173	1,100	
Kitchenette (sim to Indianola)	605	500	
Senior Eating/Pool	784	na	
Kitchen Office	60		
Subtotal:	3,231	2,400	
11) Family Center/ Youth Room			
Multipurpose Youth Room	1,250	1,000	
Subtotal:	1,250	1,000	
12) Support Spaces			
Restrooms	426	500	
Storage	600	600	
Janitor	80	80	
Vending	na	100	
Subtotal:	1,106	1,280	
13) Building Systems			
Mech Equipment	722	600	
Electricial Equipment	165	150	
Maintenance Offce	104	100	
Elevator Equipment	na	150	
Audio/Visual/Data/Phone	50	100	
Subtotal:	1,041	1,100	Without track figured in

SubTotal Net Area	**29,934**	**39,100**	36,100
Net Area Multipler Circulation/Walls (15%)	14,139	5,865	5,415
Total Gross Square Footage			
	44,073	**44,965**	**41,515**
Exsiting			
Main Floor	13,825		
Second Floor	13,510		
Third Floor	13,510		
Fouth Floor	3,228		
Subtotal:	44,073		