

opportunity within the context of the larger West Chicago Central Business District. Both the newer construction near IL-59 and Main Street have spaces that previously were occupied by restaurants, and therefore these are better opportunities than a newly constructed site. Providing incentives to tenant those properties is a more fiscally sound approach than incentivizing a risky new restaurant.

Non-Traditional Commercial Opportunities

The technological changes and today's lifestyle expectations have changed how families work. Both entrepreneurs and corporate employees are increasingly working from home. When John Burns Consultants asked new home shoppers how often they worked from home, that research identified a significant number of employees not counted in traditional employee counts. It reports only 40% of the new home buyers always leave home to work.

This means that residential development designed to attract these work-at-home employees can add significantly to West Chicago's daytime employee population.

A related trend is the growth of co-working office space, these collaborative work environments rent spaces from a desk to small offices for small businesses and large corporations seeking to provide start-up or temporary offices. They also rent professional space such as conference rooms. 25N, is the closest example located at 25 N. River Lane in Geneva. Co-working spaces frequently occupy upper stories in Central Business Districts, and this could be a good use for the Study Area properties facing Washington Street and spaces outside of the Study Area on Main Street.

Another trend is temporary spaces, where stores and restaurants can test how receptive the market is to concepts. Often referred to as "Pop-Ups," temporary stores can be organized into festivals such as holiday markets or recurring events such as "Food Truck Thursday". With the vacant space near the Study Area, the Study Area could have a place and policies supporting concept testing. This program can raise regional awareness of West Chicago and build future interest in a commercial development.

With the emergence of "experiential retailing," concepts such as "Escape Rooms," indoor golf, trampoline centers, and novel wedding/party venues are emerging as commercial space users. Again, these uses look for large, vacant buildings not generally available in the Study Area but perhaps possible in adjacent areas.

Overall: A Limited Commercial Market

This Study, with its emphasis on immediate opportunities and a Study Area largely exclusive of reuse possibilities, identifies few quick commercial opportunities. Today's very unsettled retail market carries significant risk for any store or restaurant development. Still, the quick paced national commercial transition may be obscuring opportunities that could develop when today's rapid change slows. For that reason, West Chicago should look to increase its daytime population within the Study Area by specifically targeting new residential products to a different resident market and working at home buyers.

West Chicago should look to increase its daytime population within the Study Area by specifically targeting new residential products to a different resident market and working at home buyers.

The City should also identify existing space or create new space for temporary and festival commercial that confirm the Study Area's value for new concepts. As the relocation of City Hall proceeds, that building could be space for cost effective reuse and non-traditional commercial uses that prove the local market. The second reuse priority space is the bank at Washington Street where there may be an opportunity to increase use of the upper stories. If the bank is interested, it may be possible to relocate it to IL-59, rehab the historic piece of their property, and redevelop the current bank addition and parking lot into a mixed-use or residential project.

Economic Development Implementation Plan

Accelerating Progress Towards Quick Redevelopment

The West Chicago Transit Oriented Residential Development Opportunities Analysis relied on community input and a market study by Zimmerman Volk Associates (ZVA) to create a vision for significantly adding residential development on City-owned land. This vision involves substantial financial investments. Some of those investments will likely require a financial partnership with the City.

For West Chicago to realize its vision in a timely manner, currently active developers must be confident that rents or prices tenants or buyers are willing to pay cover construction costs and provide a return higher than or equal to alternative uses of investor funds. This condition is known as market rate development. If investors do not believe that rents or sales prices will provide market rate returns, a developer may choose either to find another place to invest funds or request a public/ private financial partnership to fill the “gap” between expected returns and market rate returns. For this project, the Zimmerman/Volk Associates Target Market Analysis identified the current market’s product types and associated rents. This information forms a basis for identifying partnering roles for the City and the developer.

For apartments, capital is most available for developments of 150 units or more that often are financed by pension funds or other non-bank investor groups.

Because the goal is quick redevelopment, first examine how the properties can be organized to appeal to investors with ready access to capital. For apartments, capital is most available for developments of 150 units or more that often are financed by pension funds or other non-bank investor groups. Experienced developers undertake these large projects and benefit from economies of scale in construction and design. There are two

separate groupings within the West Chicago Vision Plan that could appeal to the large, regional apartment developers:

- Blocks 3 and 4 with 180 units
- Block 5 with 150 units

The Block 3 and 4 parcels could be quickly developed because existing uses are on very short leases and the City owns all the property. Although the City also owns Block 5, its development would be delayed because it requires relocation of City Hall. The vision plan also proposes another 70 apartments on Block 1, but that property is not owned by the City and therefore its development would be reliant on private initiative to purchase and redevelop.

The proposal for 26 townhomes could be attractive to a local developer or integrated into the apartments as another rental type.

Preparing the Sites for Development

With the potential for these larger scale, easily financeable projects, there will be a need for developers to move quickly to catch the current market demand. The City should help prepare sites for development and set the stage for a streamlined process to realize the redevelopment of the Central-Main Street Study Area.

The following Developer Ready Checklist on page 27 identifies the boxes that the City can seek to ‘check’, leaving the only remaining tasks up to the private sector.

West Chicago Development Ready Checklist Example

- ☒ **Vision Plan the City Supports**
- ☒ **Pre-Approved Zoning/Code Variances**
- ☒ **Restart Modified TIF**
- ☒ **Pre-Approved TIF-Eligible Improvements**
- ☒ **Soil Tests Complete**
- ☒ **District Wide Stormwater Solutions**
- ☒ **City Commitment to Public Space**
- ☐ **Contact City for More Information**
- ☐ **Secure Financing**
- ☐ **Prepare a Conceptual Plan**
- ☐ **Project Build-Out**



Redevelopment Plan

Chapter 3: **Redevelopment Plan**

A cohesive vision for the Central-Main Street Study Area demonstrates a commitment to reinvestment in one of the City's core assets: its **Downtown**. Achieving this vision through sustainable urban design practices can create a destination for people to live, work, and play.

Downtown West Chicago needs a Vision Plan that includes high-quality urban design, responds to the local context, respects the economics of development, and is supported by the City. Emphasis should be placed on reinforcing TOD with an increased residential population near the Metra station.

The relationship of the Study Area to the historic Downtown core between E. Washington Avenue/Center Street and the commercial cluster at IL-59/Main Street are positives; however, they present certain challenges because of the interrupted sight lines, topography, and distance from the heavily trafficked IL-59. When driving by on IL-59, it is unclear that a gem of a downtown is only blocks away. When passing by on the Metra, riders have limited visibility to Main Street except for the few single-family homes between City Hall and Center Street.

Redevelopment may offer intrigue - marketing and branding in the form of new buildings and an improved public realm. If done right, redevelopment can play a part in connecting IL-59 and the Metra station to the Downtown core.

The following pages outline a vision for West Chicago with a focus on urban design, sustainability, and the surrounding context.



A Vision for West Chicago

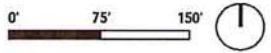


Key

- 1 70 Apartment Units (4 - stories)
- 2 6 Townhomes
- 3 14 Townhomes
- 4 60 Apartment Units (4 - stories) with 2,000 sf Commercial at Corner
- 5 6 Townhomes
- 6 60 Apartment Units (5 - stories) with 1,000 sf Commercial at Corner
- 7 60 Apartment Units (5 - stories) with 1,000 sf Commercial at Corner
- 8 150 Apartment Units (5 - stories) with 2,000 sf Commercial at Corner
- 9 Future Development Opportunities
- 10 Future Building Expansion
- 11 Relocated City Hall
- 12 Re-purposed Historic Depot
- 13 0.60 acre Civic Park
- 14 Stormwater Bulb-Outs at Intersection
- 15 Turner Court Stormwater Detention
- 16 Re-purposed Historic Depot
- 17 Corner Plaza
- 18 0.4 acre Neighborhood Park
- 19 Tot Lot Playground
- 20 Path Connection to Main Street

Preferred Plan Summary

- 6,000 sf Commercial
- 340 Apartment Units
- 26 Townhomes
- 1 acre Parks / Open Space



Key Vision Recommendations

Encourage High Density Residential Near Station

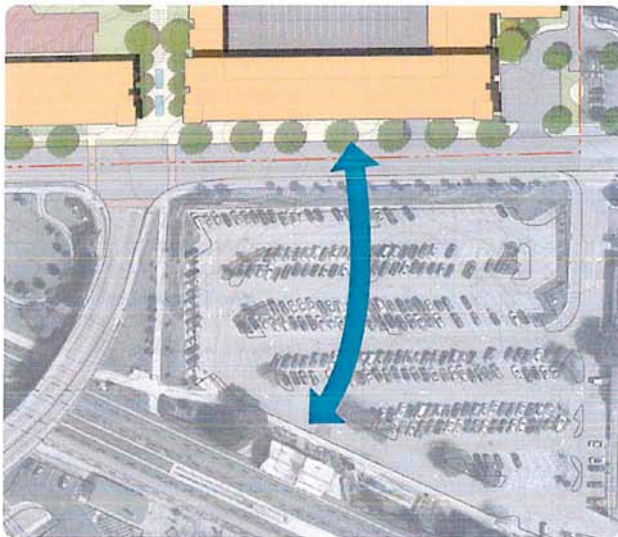


Figure 18

West Chicago is a natural fit for TOD. Other Chicagoland suburbs, who also have Metra stations near the Downtown core, are capitalizing on TOD. To leverage this asset, the City should encourage a minimum of four stories, illustrated in the Vision Plan as five-stories, for mixed-use development across from the station. The development may incrementally step down in height away from Main Street where it is closer to the single-family neighborhood beyond.

As redevelopment occurs and parking needs change with the introduction of driverless cars and the increasing rideshare industry, the Metra parking lot immediately adjacent to the station may become available for mixed-use redevelopment.

(see page 10)

Allow Taller Building Heights Along Main Street

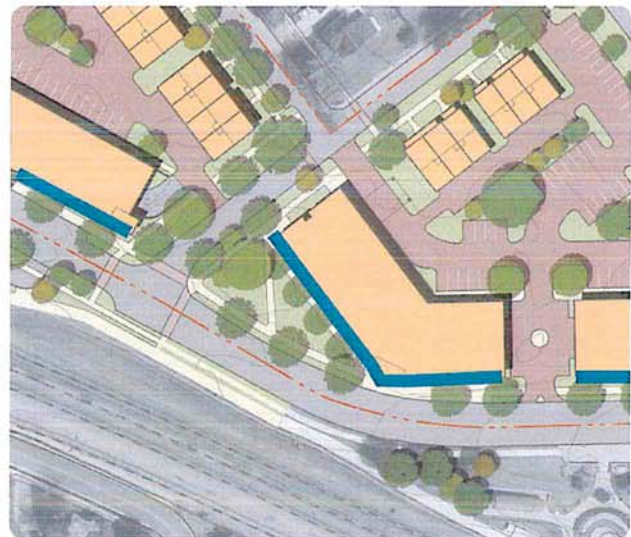


Figure 19

Like Block 5 which fronts onto Main Street, the frontages of Blocks 3 and 4 should be redeveloped with a maximum of five-story buildings. These facades will play a significant role in adding to the perceived walkability from Metra station to Downtown core. These buildings should also provide residential entrances along the facades and commercial storefronts at intersections. The buildings should be located near the front property line with minimal setback, except in the case of a small landscape buffer or private outdoor space. Allowing the taller, five-story buildings may be the difference between a project being financially feasible or not, so consideration of the trade-offs should be heavily weighed. Building setbacks towards the smaller scale neighborhood and only allowing five-stories within 80 feet from the Main Street property line may help mitigate the taller height along Main Street.

Redevelopment along High Street should respect the scale of the historic single-family homes on the north side of the street. A residential vernacular should help complement the scale and character of the homes, while allowing for a higher density product type to support more Downtown living.

(see page 10)

Create a Series of Landmarks Through Downtown



Figure 20

Introducing a series of visual landmarks would greatly enhance wayfinding and architectural character. The Vision Plan demonstrates strategic locations for architectural towers and corner public spaces that attempt to draw people down Main Street and into the Downtown core. These visual landmarks occur each time the street bends.

The corner public spaces should include water features to reinforce West Chicago as a city of fountains.

(see page 11)

Build a Park to Support Downtown Residents



Figure 21

To address one of the most glaring Downtown deficiencies, the City should commission a landscape architect or incentivize a private developer to complete the design of a neighborhood pocket park and tot lot playground at the corner of Center Street and High Street. This location is already a vacant lot that has provided recreational space for the community. The current site is over-scaled for the size of Downtown, so redevelopment on a portion of this City-owned lot is recommended.

The pocket park should include a variety of active and passive program options, such as a tot lot playground, exercise equipment, flexible lawn seating, a water feature, sidewalks, or any other program that complements the surrounding neighborhood. As designs are finalized for the West Washington Street Plan, the uses within the two parks should be coordinated to avoid overlapping programming.

(see page 11)



Public Benefit Recommendations

11 Relocated City Hall

For the current City Hall site to become a redevelopment opportunity, City Hall must be either permanently or temporarily relocated until a new facility can be constructed. The timeline and location for this is not yet determined. Possible locations for a relocation are outlined in the 2007 Plan; however, the preferred location is within the West Washington Street Plan study area (demonstrated for illustrative purposes only in the Vision Plan). This preferred location would allow the facility to be part of a civic center that features a new public space, re-purposed historic depot, and City Hall.

City Hall represents the overall community, so special design consideration and site selection are important when determining a relocation.



Figure 22 - Mundelein Village Hall (source: Doherty Construction, Inc.)

16 Re-Purposed Historic Depot

The historic depot, which was formerly the location of the Metra station, is a beautiful example of station architecture. Its location at the terminus of Center Street along Main Street makes it a prominent site that holds great potential. Right now, the building is used as the Western DuPage Chamber of Commerce offices and common space. A building of this architectural significance and location should act as a destination for public events or commercial use. A re-purposing of the historic depot would give the building and site new life.

Possible uses are a restaurant, cafe, location for pop-up markets or events, a gallery, or a multi-use venue to hold public and private events. Its location overlooking the rail lines and Illinois Prairie Path - Geneva Spur increase its potential. Other communities have completed similar renovations around Chicagoland, such as near the Dempster-Skokie CTA Yellow Line Station.



Figure 23 - Starbucks at Dempster-Skokie Station (source: Yelp)



Figure 24 - Corner Plaza with Public Art (source: Pinterest)



Figure 25 - Pedestrian Promenade Connection (source: SECO Construction)

17 Corner Plaza

A mixed-use development that fronts onto a corner plaza should anchor the southern edge of the two-block segment of the Downtown core. This corner plaza would be the ideal end anchor and visual landmark to provide seating, shade, a water feature, and a location for public art. Its location across Main Street from the historic depot reinforces this location as an important intersection.

The City should work with a potential developer to incentivize the hiring of a landscape architect to carefully design a public plaza that acts as a landmark. The building should become part of the plaza and help frame the public space on its south and east edges.

20 Path Connection to Main Street

Paired with the redevelopment of Block 5 (see page 63) directly across from the Metra station, a promenade with ramps and stairs could connect the intersection of Main Street and Wilson Avenue with the terminus of S. Oakwood Avenue/Colford Avenue. Currently, only a sidewalk connection from the private parking lot exists; however, the neighborhood would benefit from a public passageway, since the block between Chicago Street and IL-59 is over one-quarter mile long. This would make it easier for current residents to walk from their front door to Main Street, the surrounding businesses, and the Metra station.

The passage should be planted and maintained with trees shading the connection as well as high quality paving and pedestrian-scale lighting.

Menu of Building Types

Mixed - Use

Mixed-use buildings are the backbone of a “Main Street”. They typically include a shopfront or service ground floor, with either residences or office space above. Much of the Downtown core is made up of historic mixed-use buildings. Though the scale of those buildings is economically difficult to duplicate, endless examples of two- to six-story mixed-use buildings exist throughout Chicagoland. Ideally the entirety of the street facing facade of mixed-use buildings would be active ground floor uses, such as those described above; however, the market has not demonstrated the demand for that much area of non-residential lease space. **With that in mind, the City should prioritize active ground floor uses at intersections.**



Figure 26 - Mixed-Use Building (source: Bethesda Magazine)



Figure 27 - Mixed-Use Building (source: ULI Washington)

Multifamily Apartments/Condominiums

Apartments are typically a for-rent product, while condominiums are for-sale owner occupied, with shared maintenance becoming the responsibility of a homeowners association (HOA).

Nationally, the rental market has been active from a new construction standpoint. For the near-term, the City should focus its attention on identifying potential investors to build high-density, transit-oriented, multifamily apartments within Downtown. Rental versus condominium products are cyclical, so the desire to build one or the other may depend on timing of the current market cycle.



Figure 28 - Multifamily Building (source: R&H Construction)



Figure 29 - Multifamily Building (source: Birkhill Apartment Homes)

Four- or Six-Flats

Four- and six-flats are smaller footprint, infill alternatives to the typically larger scale multi-family apartments/condominiums. Four-flats are typically two-stories with two units on the ground floor and two units above, while six-flats are similar except for an additional floor of two units. The use of wood construction and absence of an elevator allow both four- and six-flats to be constructed more economically than midrise buildings.

These buildings are outstanding options in urban locations because of their infill potential, medium density capacity, and complementary scale to smaller buildings.



Figure 30 - Four-Flat (source: Rome of the West)



Figure 31 - Six-Flat (source: EOA Architects)

Live/Work

Similar in form to townhomes or multi-family apartment/condominium buildings, live/work buildings typically feature neighboring units that share a party or common wall and are organized in-line. The scale and texture of these buildings can take on a more neighborhood-friendly scale with smaller footprints and smaller bays. Shopfront-like windows provide for an optional in home business.

Appropriate locations for these building types may be along Main Street or E. Washington Street if demand for larger multi-family apartments/condominiums reduces.



Figure 32 - Live/Work Building (source: Malsam Tsang Structural Engineering)

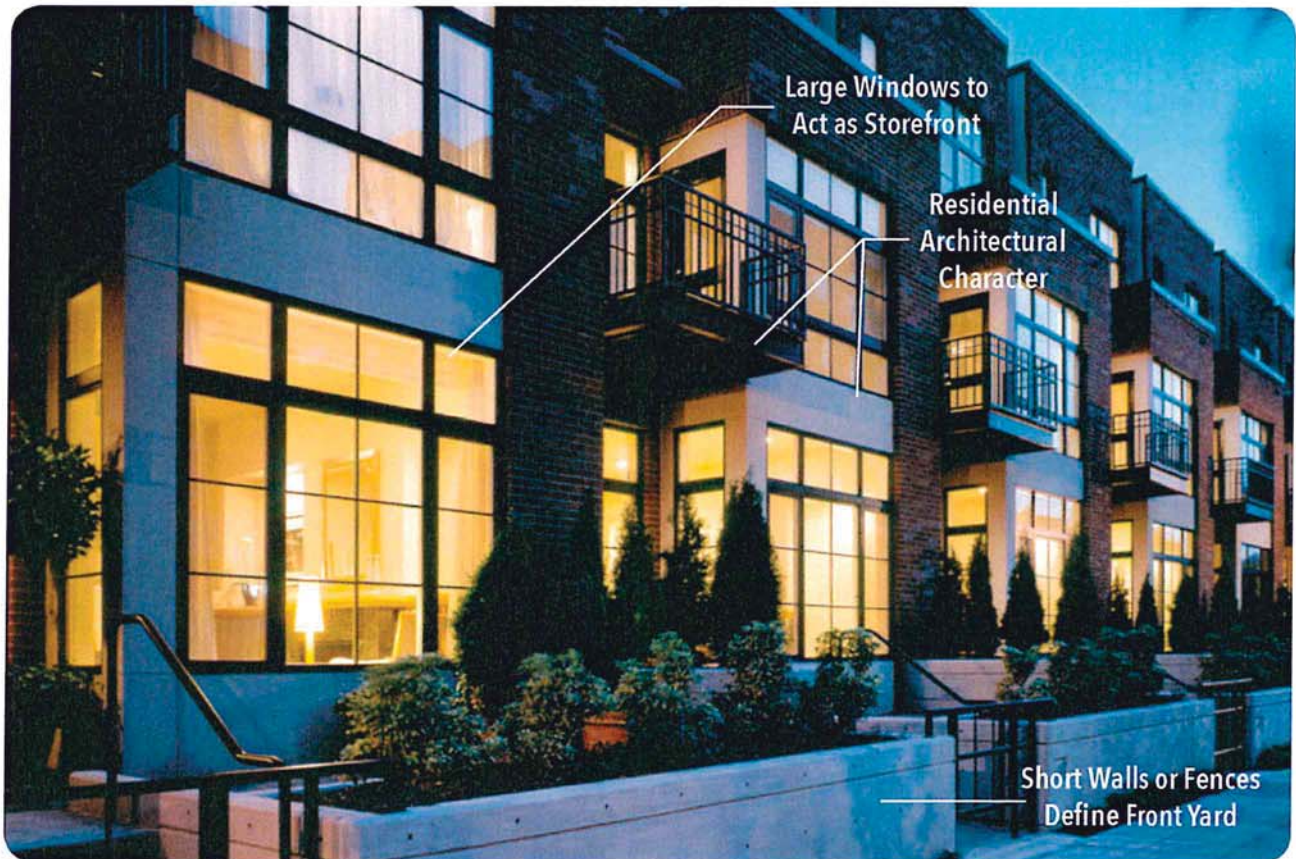


Figure 33 - Live/Work Building (source: Tiwana Properties)

Townhomes

Townhomes are single-family homes that share a common wall and are organized in-line. Comparable townhomes in other communities may feature four to eight townhomes in a row; however, there are deviations. Elevated entries up two to four feet above sidewalk level, as well as vegetated buffers, short walls, and fences, help define the transition from public right-of-way to private interior space.

The townhomes illustrated in the Vision Plan feature both tuck-under and detached garage parking.



Figure 34 - Townhomes (source: Google Plus)



Figure 35 - Townhomes (source: Mithun)

Single - Family Detached



Figure 36 - Single-Family Detached Homes (source: YouTube)

Much of the suburbs are made up of single-family detached housing (not represented in the Vision Plan); however, near a downtown such as this, a more urban, narrow lot model is ideal. Building lots may be approximately 30 feet wide with minimal front and side yard setbacks. These homes often have porches oriented towards the street with the ground-floor elevated two to four feet above grade.

Single-family homes are expected to do well in this market; however, their lack of density, even with narrow lots, does not support TOD as well as higher density multi-family apartments/condominiums or townhomes do.



Figure 37 - Single-Family Detached Homes (source: Pinterest)

Urban Design Guidance

Diversify Frontage Types

Architectural variation is encouraged, particularly on the ground floor, to avoid long, monotonous facades and create a more interesting pedestrian experience. Diversity of building frontage types can include storefronts, signage, residential entries, and landscaping.

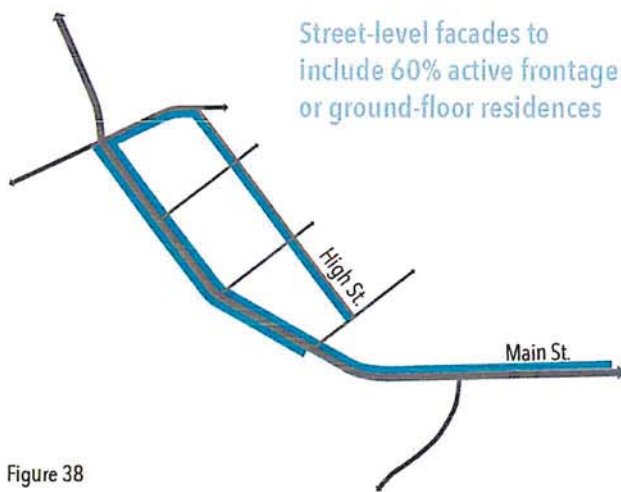


Figure 38

Tall Ground Floor Height

Tall ground floors are more consistent with the existing building proportions seen in the Downtown core. Additionally, taller ground floors are easier to lease and more desirable to retail, office, and restaurant tenants.

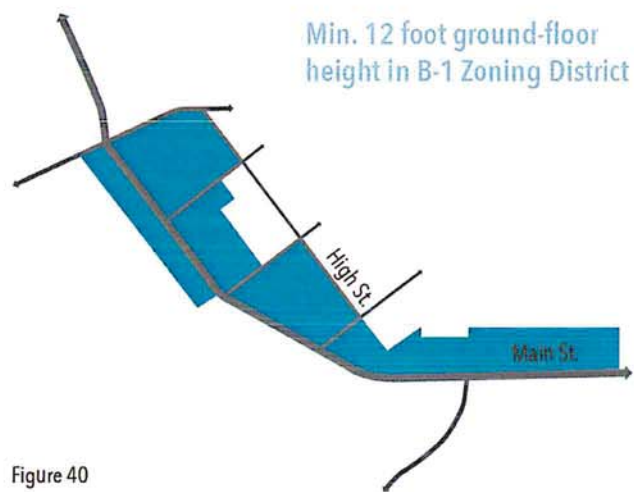


Figure 40



Figure 39 (source: City of New Orleans)



Figure 41 (source: Kamm Architecture)

Utilize On-Street Parking

Accessible street parking makes storefronts more attractive, acts as a traffic calming mechanism, and helps alleviate the demand for off-street parking. On-street parking should be added to Main Street and High Street with the introduction of new, higher density development.

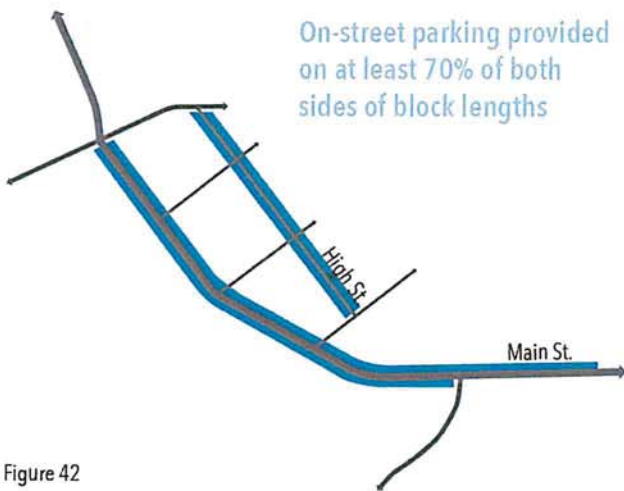


Figure 42

Layered Public/Private Threshold

In situations with little front setback, utilizing strategies such as grade-separated residential entries, short walls and fences, front porches, awnings, and landscaping, can work to create privacy through design instead of distance. Done well, these strategies can also make the pedestrian experience more engaging.

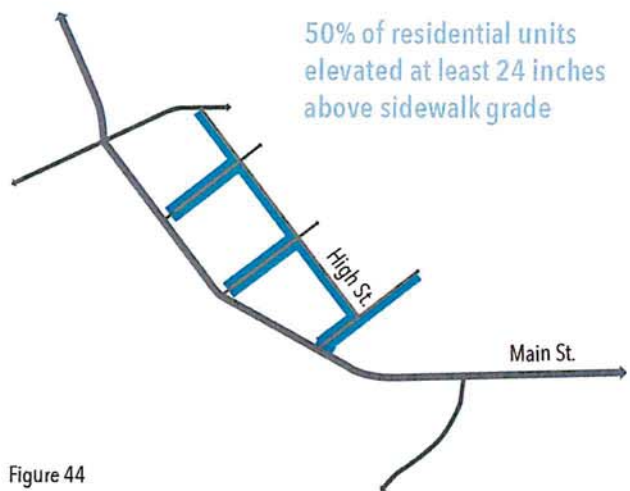


Figure 44



Figure 43 (source: Nvision Design Studio, Inc)



Figure 45 (source: City of Seattle)



Minimize Vehicle/Pedestrian Conflicts

Curb cuts and driveways should be minimized with new development. They expose pedestrians to potential conflicts with vehicles and are often eyesores from the pedestrian standpoint. Vehicle access should be consolidated and no wider than 24 feet at drives or parking garage openings.

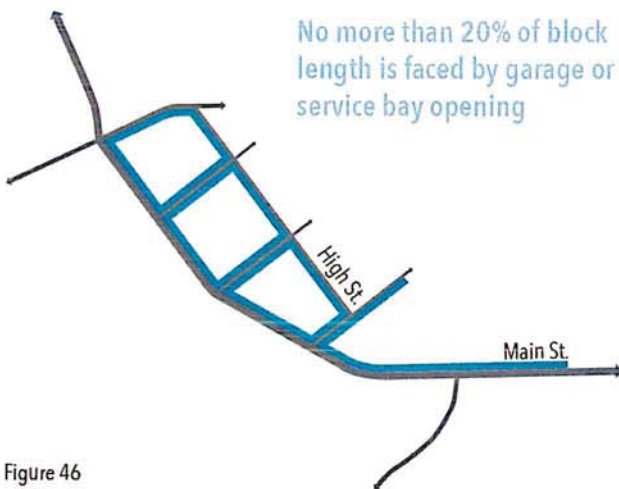


Figure 46

Screen Surface Parking Lots

Ideally, surface parking lots would not be adjacent to the sidewalk as redevelopment occurs; however, in certain situations this is unavoidable. Surface parking lots should be set back from the public right-of-way and screened using short fences, decorative walls, and/or landscape treatments.

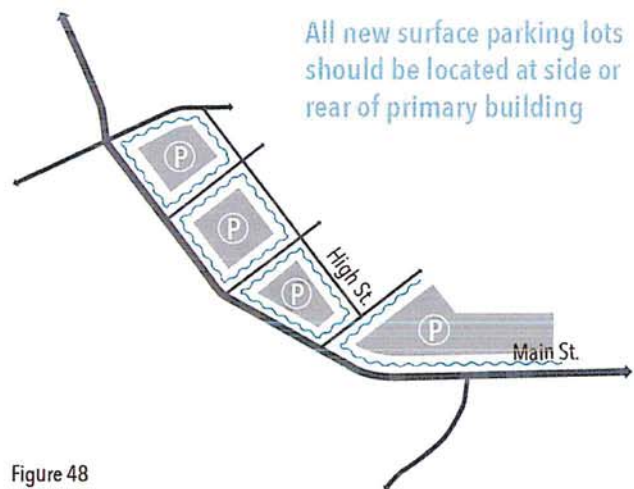


Figure 48



Figure 47 (source: Google)



Figure 49 (source: Land Perspectives)

Shade the Sidewalks

Trees should be provided along all sidewalks to shade pedestrian pathways. Main Street should have regularly spaced trees (no more than 50 feet on-center), while High Street and other side streets may be less consistent, depending on the type of redevelopment.



Figure 50

Comfortable Sidewalk Width

Industry standards suggest that sidewalks adjacent to mixed-use or commercial uses should be a minimum of 8 feet wide. Residential streets should have a minimum sidewalk width of 4 feet.

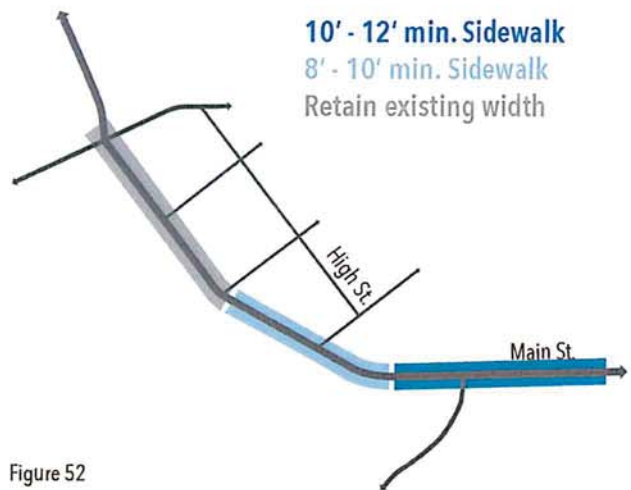


Figure 52

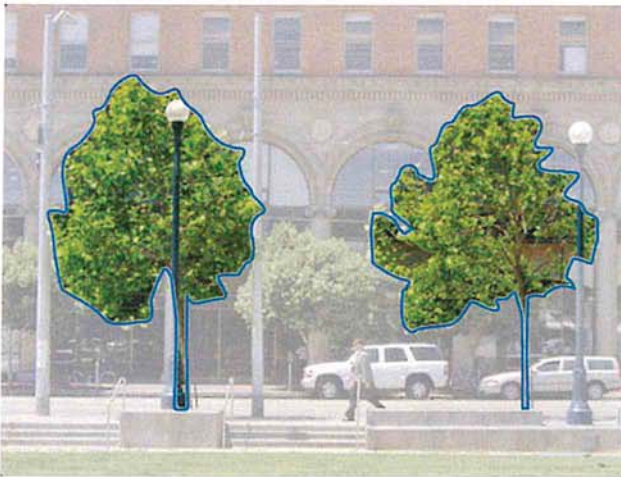


Figure 51 (source: SF Better Streets)



Figure 53 (source: Pinterest)



Stormwater Green Infrastructure Toolkit

Integrating Stormwater Management

Younger adults and families are demanding opportunities for outdoor recreational activities such as canoeing, hiking, and bird watching, in urban centers. These interests are fueling a demand for suburban communities with thriving urban centers in relatively close proximity to high quality open space. At the same time, there is increased public understanding that roofs, pavement, and other urban surfaces are contributing to flooding and degradation of our streams, lakes, and wetlands. Thus, it is essential that urban revitalization projects recognize these issues and integrate high performance stormwater measures into the urban fabric with each project. Integrating high quality and visible stormwater features into the architecture and landscapes provide an opportunity to differentiate the project from every other project while simultaneously reducing flooding and protecting the natural areas that are cherished by the public.

Impervious Cover Requirements

The DuPage County and West Chicago stormwater ordinances require (1) water quality treatment with Post Construction Best Management Practices (PCBMPs); and, (2) site runoff storage using some form of detention that provides storage for up to the 100-year storm event. However, the requirements only become effective if the post-development increase in impervious cover exceeds certain thresholds. The PCBMP requirement becomes effective if the increase in impervious cover exceeds 2,500 square feet. The detention requirement becomes effective if the increase in impervious cover exceeds 25,000 square feet. Once the detention threshold of 25,000 square feet of net new impervious is exceeded, the project is treated like new development and detention must be provided based on the proposed cover conditions, regardless of existing cover.

Stormwater Green Infrastructure Toolbox

Green infrastructure stormwater practices are inspired by and designed to mimic the management of rainwater in the natural environment in terms of infiltration, evaporation, and surface runoff.

Below is a summary of green infrastructure tools applicable to the West Chicago study area. These practices are proposed due to their high level of environmental performance, their ability to be integrated into site and streetscape plans, and their ability to enhance the urban aesthetic of downtown West Chicago. Because these practices can be integrated into most any landscape or pavement area, they are very space efficient, reducing or negating the need for single purpose detention basins.

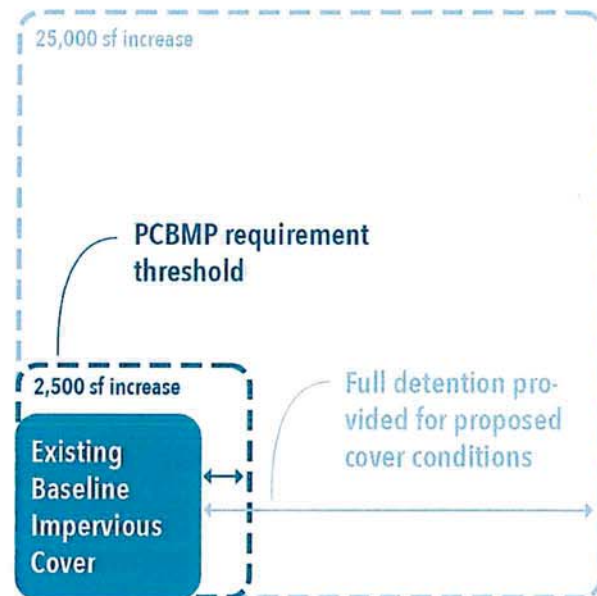


Figure 54 - Impervious Cover Requirements

Permeable Paving



Figure 55 - Permeable Paving (source: Conservation Design Forum)

Permeable paving products, such as porous asphalt and concrete, as well as permeable pavers allow water to pass through the surface and into a stone storage layer below.

The water stored in the stone layer either infiltrates into the soil below or is slowly released to a sewer or other drainage system to reduce stormwater runoff volumes and rates. Sediment, metals, and organic compounds are filtered and/or biologically treated as the runoff moves through and is stored in the system.

Properly designed permeable paving systems are applicable to both pedestrian and vehicular areas. Permeable paving should be avoided in the through lanes of high traffic areas (such as County and State highway routes) and areas of high sediment or other pollutant loading that could clog the system or overwhelm the system's ability to treat typical urban runoff pollutants.

Bioretention Landscapes



Figure 56 - Bioretention Landscape (source: Conservation Design Forum)

Bioretention systems are engineered landscapes that are depressed to receive and manage runoff from adjacent areas. These systems are typically composed of an engineered topsoil layer above a stone drainage and storage layer.

Bioretention systems come in many forms including landscape rain gardens, depressed parking lot bioswales, depressed street bump outs, and building and sidewalk planters. Runoff is filtered by the vegetated topsoil where microbial activity and plant uptake can utilize nutrients and other runoff pollutants.

When designing and sizing bioretention systems, care must be taken not to overload them with runoff and sediment that will lead to poor plant health and increased maintenance. The required soil layer thickness varies with the type of vegetation, the surface depth, and gravel layer thickness.

Depending on the depth of bioretention and the design of the soil in the bioretention system, a minimum bioretention area of 15% to 20% of the tributary impervious area is recommended to avoid overloading the bioretention with water and sediment, degrading the quality of the landscape.

Surface Detention



Figure 57 - Surface Detention (source: Conservation Design Forum)

Surface detention systems are typically designed to provide both flood control and water quality benefits and include features such as open pools of water, wetland vegetation, and naturalized shorelines and side slopes.

While surface detention is one of the least expensive methods of stormwater storage to install, it can take considerable high-value space and is therefore less applicable to small infill and redevelopment projects in West Chicago.

Underground and Above Ground Storage



Figure 58 - Underground Storage Tank (source: Conservation Design Forum)

Underground tanks or vaults can store runoff from all surfaces. Runoff can be stored and slowly released to meet detention requirements or harvested for irrigation, cooling tower makeup water, toilet flushing, and most other uses that don't require potable water.

Above ground tanks are often used to store harvested roof runoff for seasonal irrigation. Caution should be used when using runoff from surfaces other than roofs due to runoff contaminants that can be detrimental to mechanical systems and plant material. Underground tanks can take many forms, including enclosed tanks, open bottom arch chambers, and enlarged pipe systems.

Systems intended for rainwater harvesting and reuse should be lined to prevent leakage. Conversely, systems designed to improve water quality and provide detention should have open bottoms to allow infiltration. Instead of a tank, runoff may also be stored within open graded stone (void space = 36%) located below permeable paving and bioretention systems. Runoff water should not be discharged directly to open graded stone storage without pre-treatment such as filtering through the surface of permeable paving or bioretention.

Vegetated Roofs



Figure 59 - Vegetated Roof (source: Conservation Design Forum)

Vegetated roofs (often referred to as green roofs) are engineered systems designed to allow establishment of vegetation on the roofs of buildings.

The systems reduce the rate and volume of stormwater runoff, provide urban habitat for beneficial insects and birds, and can reduce cooling and heating load on building climate control systems.

Light weight systems can readily be located on most existing roofs without structural modification. However, the systems must be used with compatible roof waterproofing materials. Like bioretention systems, vegetated roofs have a soil layer and a drainage layer. However, the layers on a green roof are much thinner and made from lighter materials.

From a stormwater design perspective, green roofs can generally be assumed to be pervious surfaces and therefore require less detention than a standard impermeable roof. Vegetated roofs can be designed with a range of engineered soil thicknesses, depending on the desired vegetation.

Green Streets



Figure 60 - Stormwater Bulb-Out (source: Conservation Design Forum)

Green streets are an application of permeable paving and/or bioretention systems.

Green street projects are limited to sidewalk planters and street bumpouts that also serve to provide protected parking. These features are designed to manage runoff from streets, sidewalks, and/or roofs.

More expansive green street projects may include permeable paving sidewalks and/or streets. For these projects, the gravel storage extends under most or all of the right of way, receiving runoff from the permeable paving and bioretention surfaces above.

Redevelopment Stormwater Strategies

Stormwater Strategies

Stormwater requirements will vary by redevelopment block (See Chapter 4 for definition of redevelopment blocks) based on existing and proposed impervious cover. There are three categories of strategies for providing required stormwater management: Site Strategies that provide all the required management onsite, District Strategies that provide all required stormwater offsite, and Hybrid Strategies that provide a portion of required management storage onsite and a portion offsite.

For the Study Area, a hybrid strategy is will likely be the only way to support a marketable density that promotes TOD and checks the box for stormwater detention; however, early and continued communication with the County to confirm compliance with stormwater requirements is recommended. Downtown infill sites often require innovative solutions to handling stormwater and these sites within the Study Area warrant out of the box solutions.

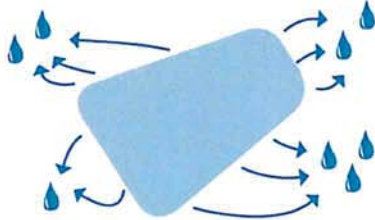
Strategy A: Site Stormwater Management



Each of the strategies described under the Stormwater Toolbox are appropriate for managing stormwater within the West Chicago redevelopment blocks. However, it is often useful to consider the cover type when selecting the most appropriate strategy:

- **Surface parking and other at-grade paving:** For parcels where only PCBMPs are required, bioretention islands located within a parking lot can meet the storage requirements. However, when detention is required, permeable paving is often a more effective strategy since all the gravel beneath the parking lot can be used for stormwater storage.
- **Roof areas:** Vegetated roofs can be used to meet PCBMP requirements. However, green roofs will generally be inadequate to meet the full detention requirements. When detention is required, underground storage beneath permeable paving parking and bioretention areas can be used to meet the detention requirements for the roof area. However, since pre-treatment is recommended prior to discharging roof runoff into underground gravel storage, bioretention planters around the building are recommended to provide that treatment.
- **Vegetated areas:** Under the DuPage County stormwater ordinance, even vegetated lawns and landscape require stormwater detention once the 25,000 square foot impervious cover threshold is exceeded.

Strategy B: District Stormwater Management



A district strategy may be used where the stormwater management is provided off-site from the redevelopment blocks. There are two basic approaches to providing District stormwater:

- **Regional detention:** Regional detention could be provided by constructing a large detention facility downstream of the redevelopment blocks. Storm sewers from the blocks would need to be adequately sized to convey the runoff to the regional basin and adequate land area would be required to construct the basin. A well designed surface detention basin that includes a naturalized pond and shoreline would be suitable to meet both the PCBMP and detention requirements. An underground detention vault would be adequate to provide the stormwater detention requirement but would not be able to meet the PCBMP requirement without additional measures.
- **Detention trading:** It may be feasible to provide detention for existing developed areas not requiring detention instead of providing detention on a redevelopment block. This could be done by providing PCBMP and detention storage for an existing area that was developed prior to stormwater requirements. Another option would be to provide PCBMP and detention storage for a parcel that falls below the thresholds requiring storage. Turner Court and other areas have been identified as candidate locations for providing detention credit towards storage required for the redevelopment blocks. The candidate locations are described further on subsequent pages. Utilization of detention trading would require preparation of a Stormwater Master Plan for the downtown area. The Master Plan would identify proposed receiving sites for stormwater storage as well as the proposed development sites that would utilize the detention credits. The Master Plan as well as the proposed development plans would need to demonstrate that the proposed development would not increase flooding in the downstream system.

Strategy C: Hybrid Stormwater Strategies



In some cases, the most cost effective option may be to utilize a hybrid approach where the PCBMP storage is provided on site but the detention storage is provided within regional detention or through detention trading. The details of a hybrid strategy should be specified in a Stormwater Master Plan for the downtown area as described under Strategy B, Detention Trading.

Hybrid Stormwater Approach



Identifying Potential Off-site Detention Locations

The above map identifies locations for four potential offsite detention locations that may work together or independently in easing the required load for the Study Area blocks. The four areas include: permeable paver improvements to Turner Court, expansion and improvements of the public library detention basin, expansion and improvements of the Metra detention area, and a regionally scaled detention area west of the Public

Works facilities. Each location should be considered from a cost, capacity, and timing standpoint to better evaluate which improvement has the most impact in the least amount of time, with as little financial strain as possible. It is recognized that the City's resources are valuable and limited, so these improvements should also be considered to qualify as a TIF expense.

Turner Court: Detention Trading

Turner Court provides a significant stormwater retrofitting opportunity as part of an overall redevelopment program. Turner Court is currently paved with asphalt but as part of revitalization program, the Court could be repaved in permeable brick pavers to enhance the aesthetics of the court while providing stormwater storage in the gravel below. Further, the buildings backing Turner Court all have external downspouts that could be directed to the gravel storage via building planters and other features. The total area tributary to Turner Court is approximately 64,000 square feet and the entire area is impervious. The required storage to meet the DuPage County release rate requirement is 31,400 cubic feet and all this storage could be used to offset storage requirements for other locations where it would be difficult to provide storage on-site.

Library Detention Basin: Detention Trading

There is an existing detention basin southwest of the Library on Washington Street. Under existing conditions, it does not appear that the properties to the northwest of the basin drain to it. However, it appears that with minor interventions the runoff could be intercepted and redirected to the basin and additional storage provided to serve as detention trading volume. If utilized the basin should be designed as a naturalized detention basin, as opposed to the current mowed turf, to provide both water quality and detention benefits.

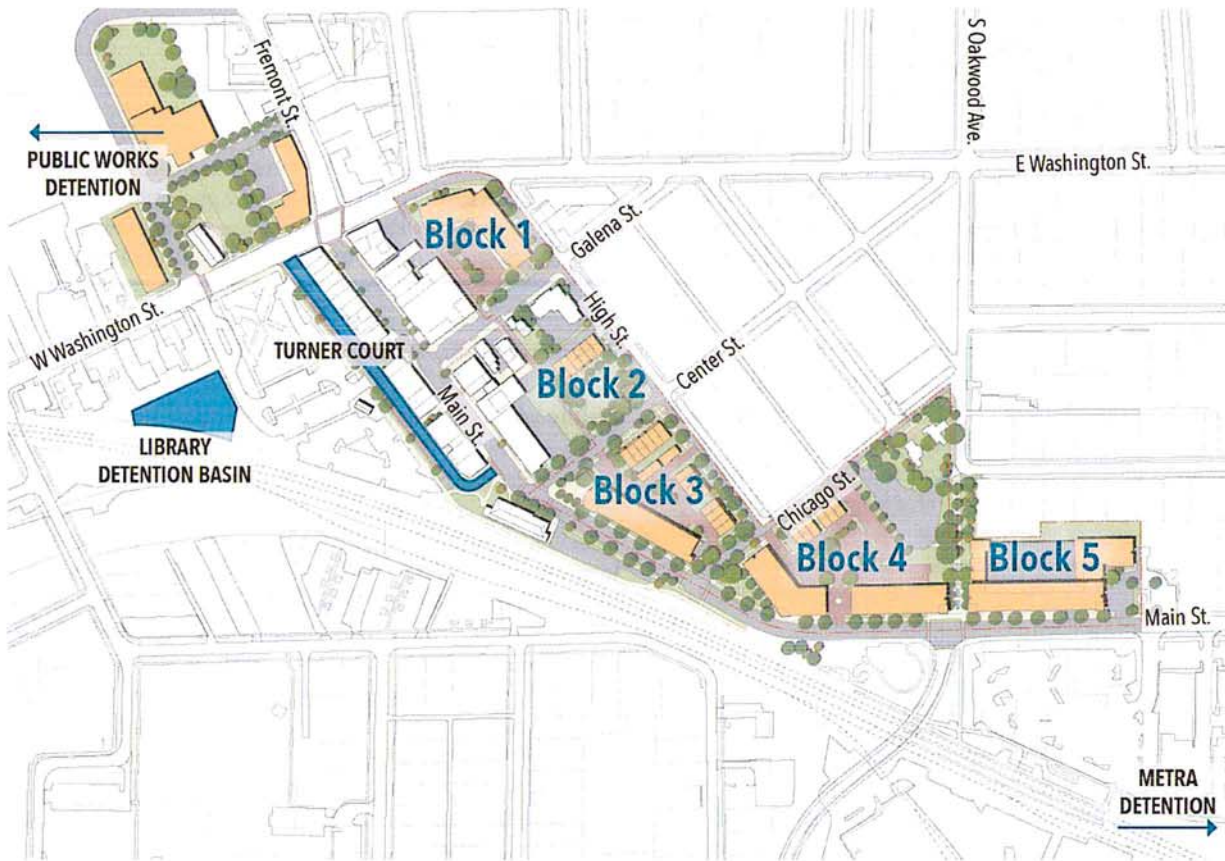
Metra Detention: Detention Trading

There is insufficient information to determine the drainage area to the basin. However, there may be opportunities to route additional runoff to the basin and the storage increased to serve as detention trading volume. If utilized, the basin should be redesigned as a naturalized detention basin (the basin is currently mowed turf) to provide both water quality and detention benefits.

Public Works Detention: Regional Detention

There is open area between the public works facility and the railway that could be developed as regional detention. Runoff from the Washington Street storm sewer could be diverted into the basin, detained, and then routed back to the storm sewer. Since runoff from the Block parcels are tributary to this storm sewer, the Public Works Detention could serve as offsite, regional detention for one or more of these blocks. Additional information, including invert elevations of the Washington Street storm sewer and property ownership, would be required to determine the volume of storage that could be provided at this location. If utilized, the storage should be designed as naturalized detention to provide both water quality benefits and detention storage.

Site Stormwater Approach



Required Detention Analysis						
Block	Total Area (sf)	Proposed Impervious Area (sf); delta	Required Storage (cubic feet)		Potential Provide Storage (cubic feet)	
			PCBMP	Total	PCBMP	Total
Block 1	48,031	37,794; 4% decrease	-	-	3,937	21,422
Block 2	34,246	11,566; 22% increase	1,205	1,205	1,205	12,192
Block 3	77,374	60,081; 46% increase	6,258	34,354	-	-
Block 4	90,996	67,429; 61% increase	7,024	39,675	7,024	39,675
Block 5	106,643	80,623; 33% increase	8,398	46,923	-	-
Turner Court	64,000	64,000	-	-	6,667	31,360
Public Works Detention	-	-	-	-	-	-
Library Detention Basin	43,300	43,300	-	-	4,510	21,217
Metra Detention	-	-	-	-	-	-
Totals	-	-	22,885	122,157	23,343	125,866

Table 6

Block 1 - Reduce Impervious Surface

Because the impervious cover for Block 1 will decrease with the preferred plan, no water quality or detention stormwater storage is required to redevelop this block. However, since the proposed development plan includes surface parking, an opportunity exists to provide water quality and/or detention storage that could be used to provide credit for storage required on other blocks where storage will be difficult to provide (detention trading). Based on the site and impervious areas of 48,031 and 37,794 square feet, respectively, approximately 21,422 cubic feet of storage could be provided to offset detention required on other blocks.

Block 2 - Park Stormwater Management

The increase in impervious cover for Block 2 exceeds 2,500 square feet but does not exceed 25,000 square feet. Based on the net new impervious area of 7,491 square feet, the required PCBMP storage is 1,205 cubic feet and no detention storage is required. However, since the proposed development plan includes significant open space where stormwater storage could be provided, an opportunity to provide detention storage exists and that storage could be used to provide credit for storage required on other blocks where storage will be difficult to provide (detention trading). Based on the site and impervious areas of 34,246 and 11,566 square feet, respectively, approximately 10,987 cubic feet of storage (in excess of the 1,205 cubic feet required) could be provided to offset detention required on other blocks.

Block 3 - Near-Term Need for Offsite Solutions

The increase in impervious cover for Block 3 exceeds 25,000 square feet and therefore PCBMP and site runoff (detention) storage are required. Based on the total area of the block of 77,374 square feet and the proposed impervious cover of 60,081 square feet, the total required detention storage would be approximately 34,354 cubic feet. Due to the topography of Block 3, it may be difficult to provide onsite storage to meet all of the required PCBMP and detention storage on site.

Block 4 - Accommodate on Site

The increase in impervious cover for Block 4 exceeds 25,000 square feet and therefore PCBMP and detention storage are required. Based on the total area of the block of 90,996 square feet and the proposed impervious cover of 67,429 square feet, the total required detention storage would be approximately 39,675 cubic feet. Due to the relatively flat topography over the majority of this site, it should be feasible to provide onsite stormwater management for this block using permeable paving and bioretention with underground storage.

Block 5 - Need for Offsite Solutions

The increase in impervious cover for Block 5 exceeds 25,000 square feet and therefore PCBMP and detention storage are required. Based on the total area of the block of 106,643 square feet and the proposed impervious cover of 80,623 square feet, the total required detention storage would be approximately 46,923 cubic feet. Due to the topography of Block 5 and the proposed underground parking that extends outside the building footprint, it may be difficult to provide onsite storage to meet all of the required PCBMP and detention storage on site.