

## **ABSTRACT**

Title of Document: SUBURBAN REFILL AND REGENERATION,  
MIXED USE AND HIGHER DENSITY DEVELOPMENT IN  
THE PRINCE GEORGE PLAZA METRO STATION AREA

Qiansen Yang, Masters of Architecture, 2015

Directed by: Garth Rockcastle, Associate Professor  
School of Architecture, Planning and Preservation

The car oriented society in the United States causes a lack for the pedestrian, air pollution, traffic congestion and an increased cost for transportation. The suburban sprawl and underdeveloped suburban areas contributes to monotony.

There is a need for a thorough rethinking of the suburban areas, especially near light rail and transit oriented development opportunity zones. This thesis evaluates the Prince George Plaza area, to show how much more design and urban oriented space thinking could help further, in essence a more pedestrian friendly precinct with mixed use and higher density development, along with significant parking and infrastructure transforming can make a dramatic difference.

The thesis explores has three primary scales of concern: a master plan of

the context, a multi-block precinct within the master plan, and a proposed building within that precinct. With creative design thinking and a rigorous “pay forward” approach, I will seek to demonstrate how design thinking can provide transformative promise and development returns to a compromised nearby neighborhood.

SUBURBAN REFILL AND REGENERATION, MIXED USE AND HIGHER  
DENSITY DEVELOPMENT IN THE PRINCE GEORGE PLAZA METRO  
STATION AREA

by

Qiansen Yang

Thesis submitted to the faculty of the Graduate School of the  
University of Maryland, College Park in partial fulfillment  
of the requirements for the degree of  
Masters of Architecture

2015

Advisory Committee:

Associate Professor Garth Rockcastle, Chair

Associate Professor Brian Kelly

Associate Professor Carl Bovill

©Copyright by

Qiansen Yang

2015

## **DEDICATION**

I would like to dedicate this to my mom. Without her support and encouragement, none of this could have happened.

## **ACKNOWLEDGMENTS**

For their mentorship, discussion and inspiration:

Garth Rockcastle

Brain Kelly

Carl Bovill

For their patience, conversation and help:

Adam Louie

Gina Fernandes

Sam Englehart

Daniel Moreno-Holt

Pranjali Rai

Prakruti Hoskere

## Table of Contents

<b>ABSTRACT.....</b>	i
<b>DEDICATION .....</b>	ii
<b>ACKNOWLEDGMENTS.....</b>	iii
<b>Chapter 1 INTRODUCTION .....</b>	1
<b>Chapter 2 THESIS FOCUS .....</b>	3
<b>Chapter 3 PROBLEMS.....</b>	3
Urban scale.....	3
Architecture scale.....	3
<b>Chapter 4 METHODOLOGY.....</b>	4
<b>Chapter 5 ARGUMENT .....</b>	5
<b>Chapter 6 SITE CONTEXT .....</b>	5
<b>Chapter 7 SITE PROBLEMS.....</b>	24
Auto-centric.....	24
Low density.....	25
Isolation and dislocation .....	25
Ad hoc conditions (without integrated plan) .....	26
Too many single use properties .....	29
Unsafe pedestrian environment .....	29
Poor economic performance.....	30
High crime rate .....	31
High vacancies and underdevelopment.....	32
The County doesn't offer large blocks of available office space.....	32
<b>Chapter 8 DISORGANIZED CONTEXT WITH SOME PROGRESS.....</b>	33
<b>Chapter 9 POTENTIAL FOR NEW DEVELOPMENT .....</b>	36
<b>Chapter 10 UNIQUE OPPORTUNITIES AT THIS SITE .....</b>	38
Potential for designing in section .....	38
Suburban/Urban tensions overcome without extensive demolition .....	40

<b>Chapter 11 THREE KEY ISSUES NEED TO BE SOLVED .....</b>	<b>40</b>
Connection failure.....	41
Unfriendly car and infrastructure.....	41
Public destination under-utilized .....	42
<b>Chapter 12 SITE HISTORIC CONTEXT.....</b>	<b>45</b>
History development reasons and results.....	45
Edward Stone design Proposal and result.....	46
<b>Chapter 13 PRECEDENTS STUDY.....</b>	<b>47</b>
<b>Chapter 14 DESIGN APPROACH IN PLAN.....</b>	<b>49</b>
<b>Chapter 15 DESIGN APPROACH IN SECTION.....</b>	<b>56</b>
<b>Chapter 16 MASTER PLAN PROPOSAL.....</b>	<b>59</b>
<b>Chapter 17 URBAN DESIGN PRINCIPLES.....</b>	<b>60</b>
Quality Public Transit .....	62
Active Transport .....	62
Car Use Management .....	63
Mixed-Use Neighborhoods with Efficient Buildings .....	63
Neighborhood Centers and Vibrant Ground Floors .....	63
Public Spaces.....	64
Community Participation and Collective Identity .....	64
Energy efficient community .....	65
Defensible Space: Deterring Crime and Building Community.....	66
<b>Chapter 18 PHASING AND OPTIONS .....</b>	<b>71</b>
<b>Chapter 19 PROGRAM PROPOSAL .....</b>	<b>74</b>
<b>Chapter 20 NEW CONNECTION EXPERIENCE .....</b>	<b>76</b>
<b>Chapter 21 THE SCALE OF ARCHITECTURE .....</b>	<b>81</b>
<b>Bibliography.....</b>	<b>84</b>

## **Chapter 1 INTRODUCTION**

The development of the automobile has dramatic effect on the city and the society. While it provides mobility and convenience, it also causes disconnection, sprawl, congestion, unsafe conditions, and pollution.

Car use is supported by laws that require new development include adequate parking for it to be approved. The effect is to create inexpensive or free parking, often at the expense of pedestrian friendly streets and experiences

Many shopping centers and suburban development even avoided providing sidewalks or linking to transit development, making pedestrian access dangerous, and further encourage people to drive their cars.

The auto centric culture compels people to live in low density sprawl, and to low density zoning, requiring residents to commute longer to work, shop and play.

There is a great need for healthier, more dense and pedestrian friendly development in suburban areas. The focus of my thesis will attempt to improve the initial efforts to respond to transit oriented development opportunities with additional mixed use infill and to provide more effective connections to the nearby amenities infrastructure. The goal is to achieve more attractive, economically visible and sustainable development.

Prince George's is home to the lowest median home values and highest property tax rates in the region, largely due to the low home values and demographic challenges of this side of the District of Columbia. Seven of the county's fifteen Metrorail stations

are in these gateway neighborhoods, but they all are devoid of any substantial transit-oriented development (TOD). The promising way to boost Prince George's economy is to develop around its gateway Metro stations near the DC line.

My thesis examines and proposes alterations at three scales: a context plan, a precinct within the context plan, and a proposed innovative building. The context plan is a fairly dramatic alteration of the existing conditions to set the stage for a more vibrant, new town center.

The thesis expands and builds upon the value tests the value of the existing metro system in this setting. It also stands as a criticism of the suburban ideas. It seeks to balance vibrant social private social life spaces with private interests, while advancing mixed-use typologies, and increasing density and scale.

The thesis uses four specific urban design strategies: 1) retrofitting the metro station, 2) making the mass transit center a more attractive public destination, 3) redesigning the larger context with more diverse and integrated connections and with mixed-use programs, 4) retrofitting the nearby shopping mall, in filling alternative parking infrastructure, and dramatically reconsidering the role of the East-West Highway and the current isolated overpass. It is my belief that those efforts will make for a more promising framework for the future vitality of the area.

## **Chapter 2 THESIS FOCUS**

- Cure a place using design expertise
- Mixed use Infill around mass transit stations
- Higher density development in suburban town centers
- Complete, Pedestrian friendly street network with multiple transit interfaces
- Adaptive reuse of dysfunctional infrastructure for new architecture experience
- Playground / Parks as pedestrian friendly interface as levels.

## **Chapter 3 PROBLEMS**

### **Urban scale**

1. How can suburban sprawl can be reconstructed to accommodate smart growth while incorporating social fabric of the residents at varying scale?
2. How can design approach improve the isolation and detachment in the auto-oriented suburban communities?
3. How can private development be part of the integrated urban plan? How to make variations to the integrated urban based changed situation?
4. How can architecture form and arrangement contribute to the regeneration of suburban development?
5. What result in higher density, how to avoid underutilized development
6. What kind of combination inside the mixed use development could be most attractive and benefit the surrounding neighborhood?

### **Architecture scale**

1. How can design approach take full use of the surrounding resources(topography, material, climate) to celebrate itself and shelter the surroundings at the same time
2. How can the public spaces be redesigned to heighten perceptual awareness of engagement?
3. How can time and space be experienced as interconnected?
4. How can a public destination (metro station, mall, office complex) can be transformed into an active system that contributes to the community and surrounding environment?
5. How to make adaptive reuse for the existing underutilized programs

## **Chapter 4 METHODOLOGY**

- 1 History study, what was the relationship between “transit” and “development”, how do they intervene or support each other.
- 2 Measure the value of existing programs in the context, what need to be abandoned, reused, replaced.
- 3 Use Key constructions and infrastructures celebration to rebuild new identity of the development area.
- 4 Use macro and micro scale to test and adjust the design approach, integration and efficiency are the two big principles.
- 5 Creative thinking and psychology experience, achieve architecture happiness.
- 6 Case study for the plausibility check

## **Chapter 5 ARGUMENT**

- 1 Better Architecture approach can increase the property value by attracting more people to come
- 2 Proper Mixed use design approach has the ability to create convenience and diversity for social life which will improve human life quality
- 3 It worthwhile to consider development for the future
- 4 Design approach could be the guideline or the structure frame for the new development in different scale.

## **Chapter 6 SITE CONTEXT**

The Prince George's Plaza Transit District which I am working in includes approximately 300 acres of land in the north central part of the City Hyattsville along East West Highway.

The Prince George's Plaza Transit District current has significant square footage for retail and office uses. The commerce that occurs in this area contributes significantly to the County's revenue. The Prince George's Plaza Mall has about 95 percent occupancy rates and has managed to remain vibrant in the last several years of economic down- turn.

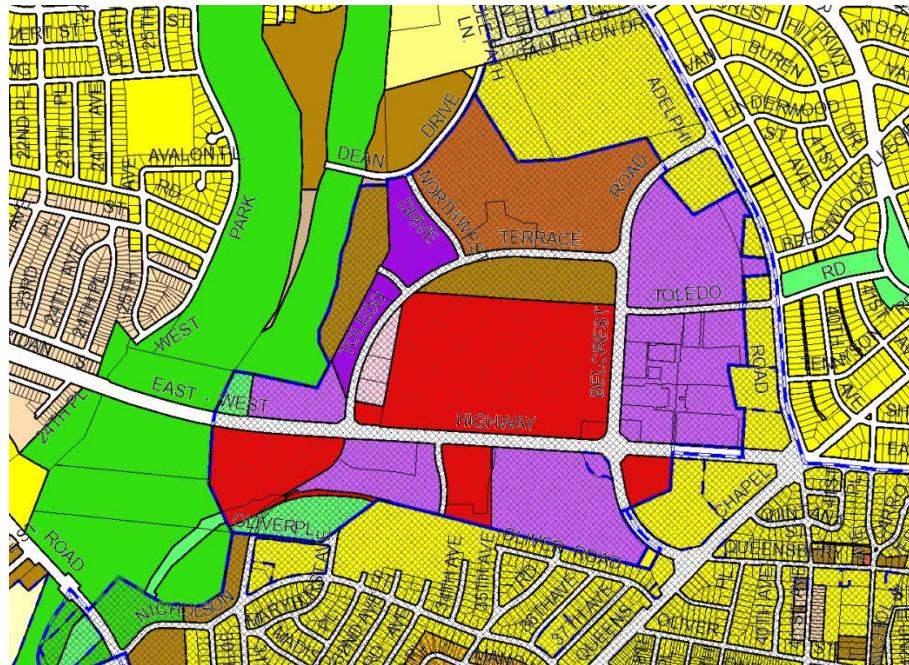


**Figure 1.Scope of Transit District Development Plan**

Surrounded by single family housing communities and higher density apartments, this area has the potential to be a destination to draw more attention.

Based on the configuration of the site map, this area is dominated by the underutilized parking lots, detached single use buildings such as gas station, bank service. the civic buildings along the east periphery works as a barrier for the residence of University Park. The metro station is off the center of the development.

- █ C-R-C: Commercial Regional Center
- █ M-U-TC: Mixed-Use Town Center
- █ M-U-I: Mixed-Use Infill
- █ M-X-C: Mixed Use Community
- █ R-18: Multifamily Medium Density Residential
- █ R-80: One-Family Detached Residential
- █ R-H: Multifamily High-Rise
- █ R-O-S: Reserved Open Space



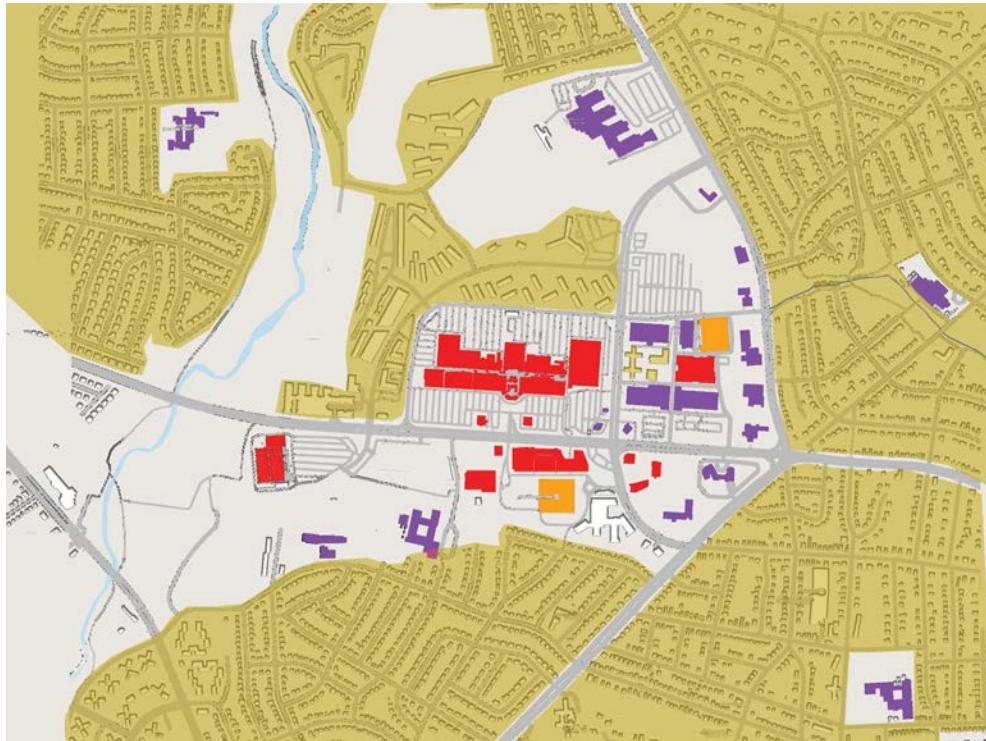
**Figure 2.Zoning Diagram for district development**

Based on the zoning map from the county government, it can be clearly seen the intention that town center develop around a central commercial zone where the historical mall locates. The green infrastructure with activities existing in it works as a barrier instead of an available resource.



**Figure 3.Configuration Diagram**

The configuration diagram above shows as more development comes in, more surface parking and vehicle circulation comes in too, working as a barrier for pedestrian activities and further development. The configuration is fragmented and disorganized with variations of different scales.



**Figure 4.Scope of Transit District Development Plan**

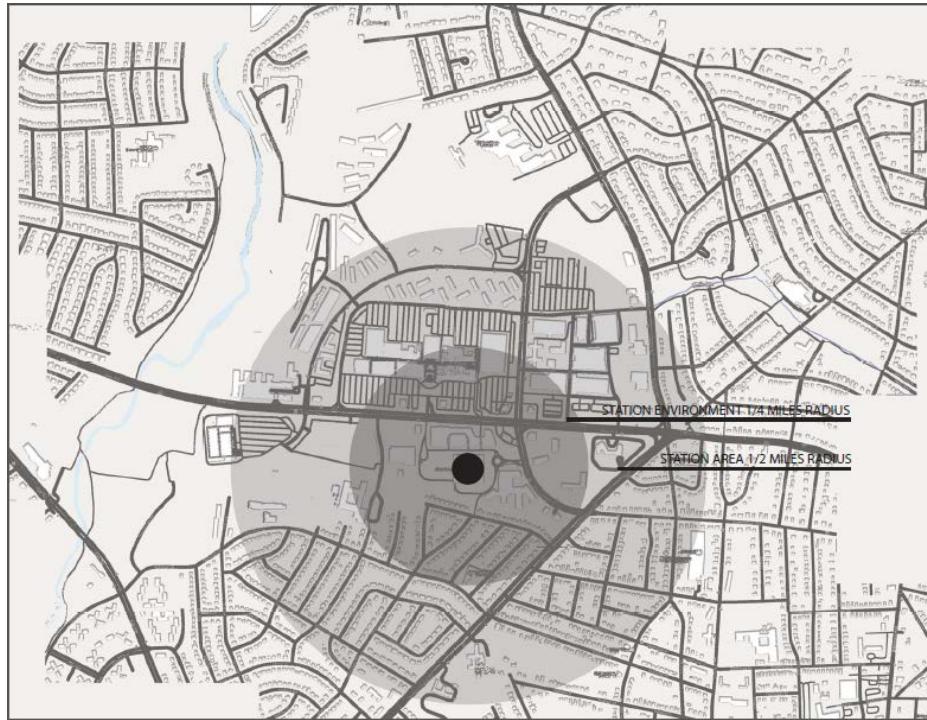
The site is surrounded by communities of single family housing, a series of civic institution buildings like high school, community center, Prince George's library and several churches.

Shopping center, retail, movie theatre locate sparsely without connections In the center of the area. A lot of educational institution buildings are around the metro station, there are a variety of different pedestrian activities inside this area.



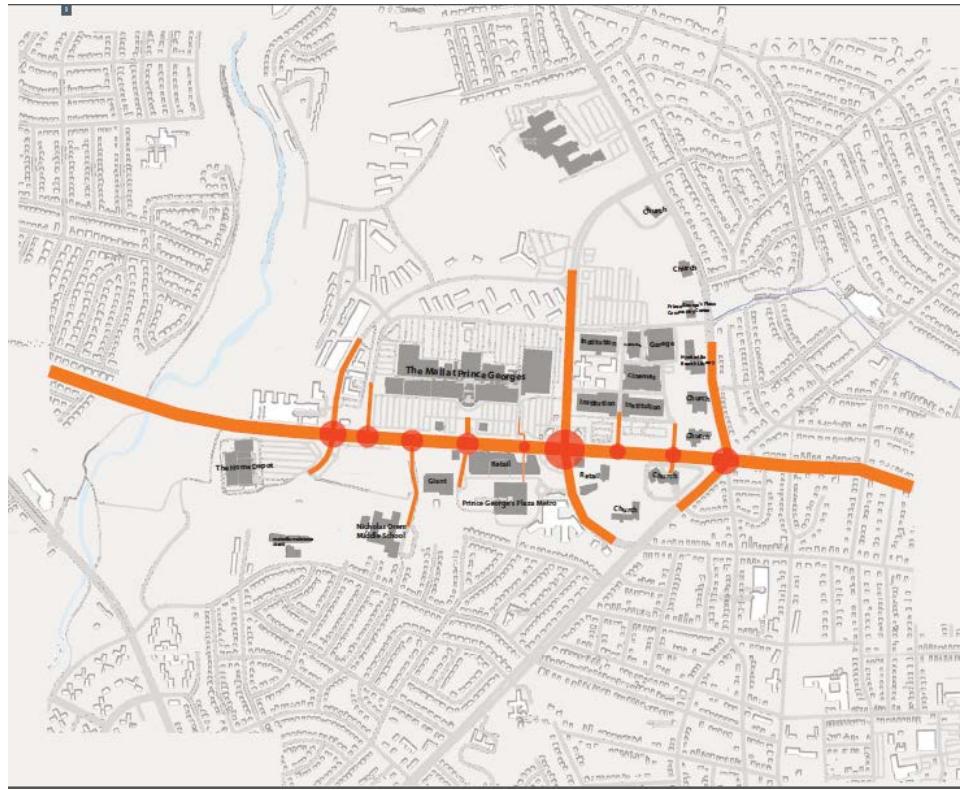
**Figure 5. Problems and Opportunities**

Among all the surface parking, there are only 25% have been used very frequently, the frontage of East-West highway frontage is underutilized and the intersection is amorphous, the disorientation, inconvenience makes this place unattractive.



**Figure 6.  $\frac{1}{4}$  mile and  $\frac{1}{2}$  mile periphery**

$\frac{1}{2}$  miles distance is always comfortable for pedestrian connections, the successful mall and the mixed use University town center are both within  $\frac{1}{2}$  miles distance from the metro station, but from  $\frac{1}{4}$ - $\frac{1}{2}$  miles, the development is sparse and unhealthy.

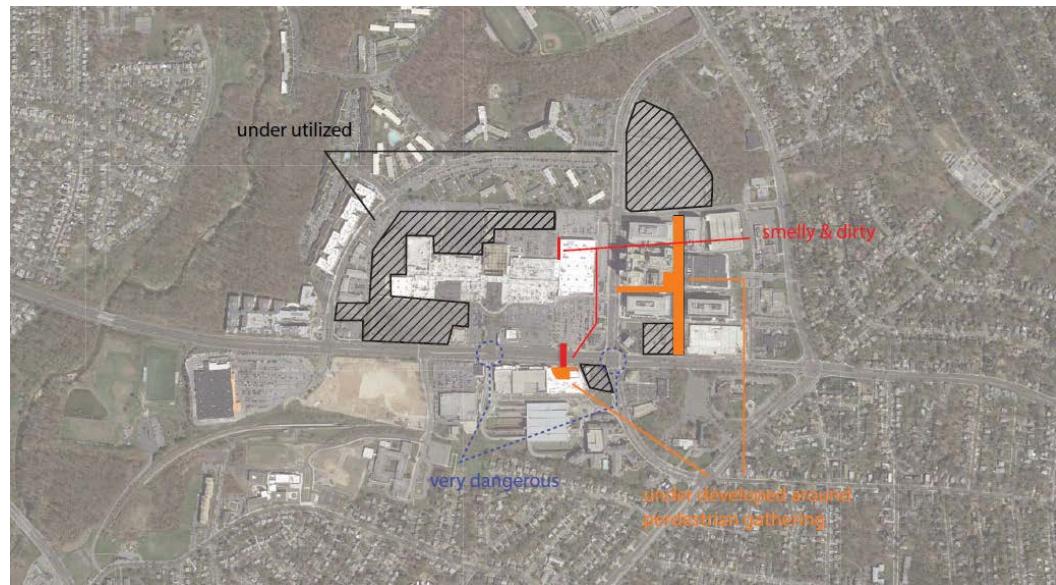


**Figure 7. Intersections Diagram**

When study different intersections in the area, the better the development is, the heavier the traffic load will exist in the site, and the more conflicts be exist between the vehicle and pedestrian.



**Figure 8. Pedestrian activities Diagram**



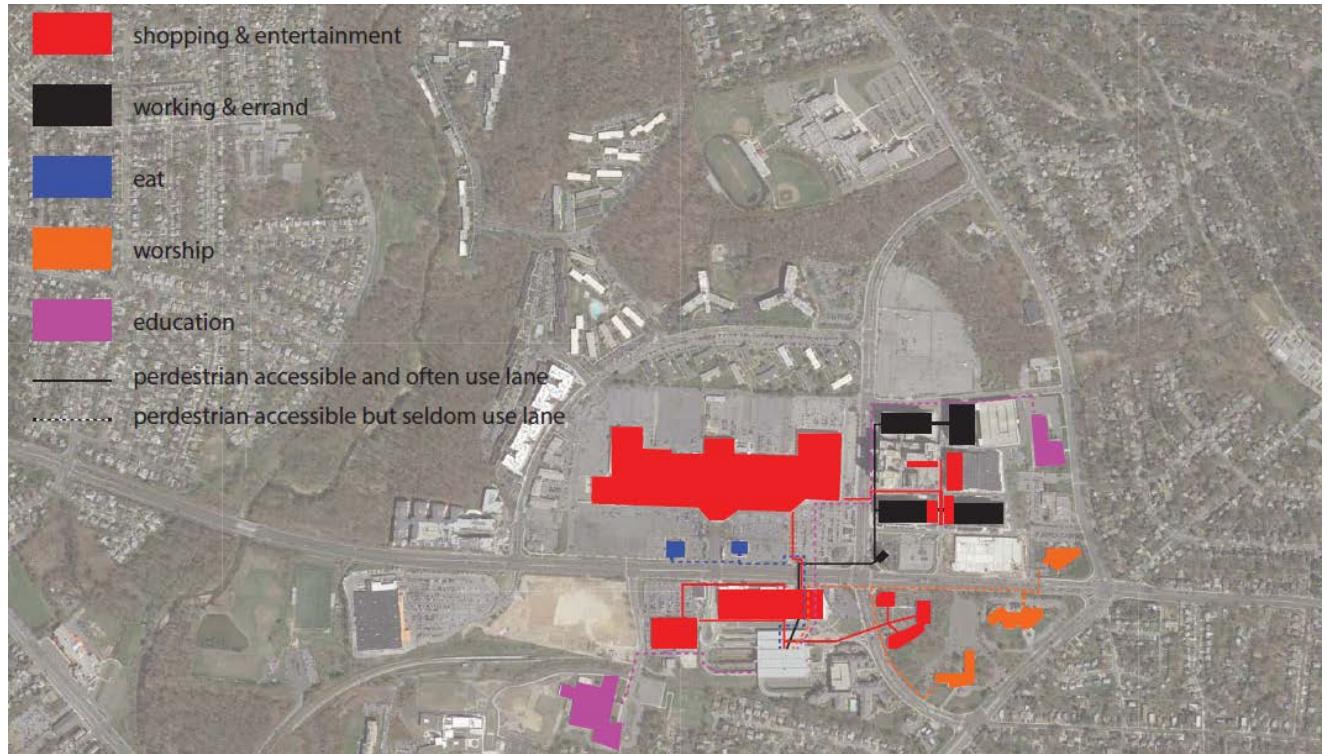
**Figure 9. Pedestrian barrier**

The existing retail corridor has high percentage of vacancy because it's not open up to the any communities or public transit.



**Figure 10. Proposed Slowdown area**

The primary pedestrian activities happen between three big destinations, the metro station, the mall and Prince George's Community College. There are urgent needs to slow the traffic to protect pedestrian safety.



**Figure 11. Existing Programs on site**

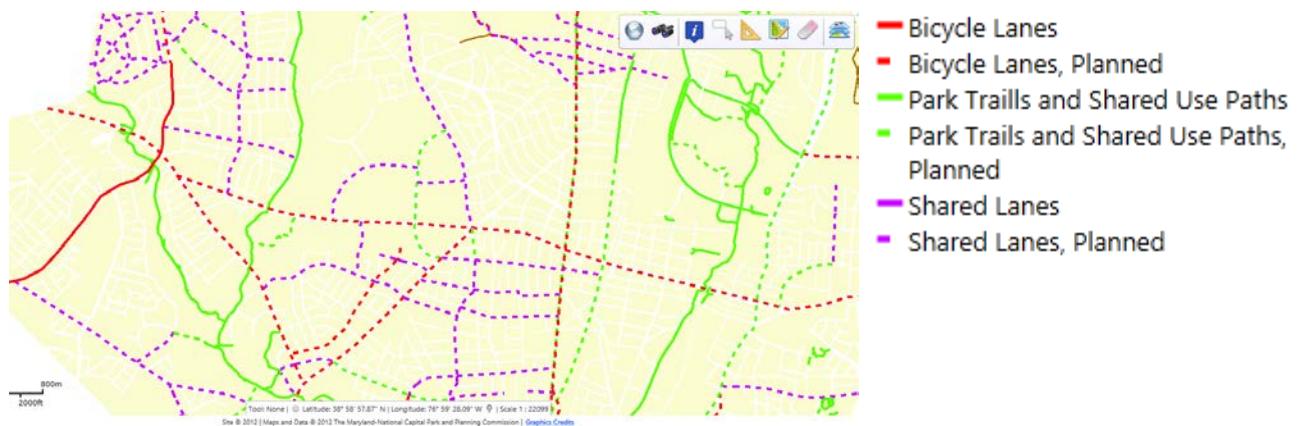
The diversity of programs in site is underutilized because of the disorganization and detachment from each other. Even within walk distance, people still prefer driving.



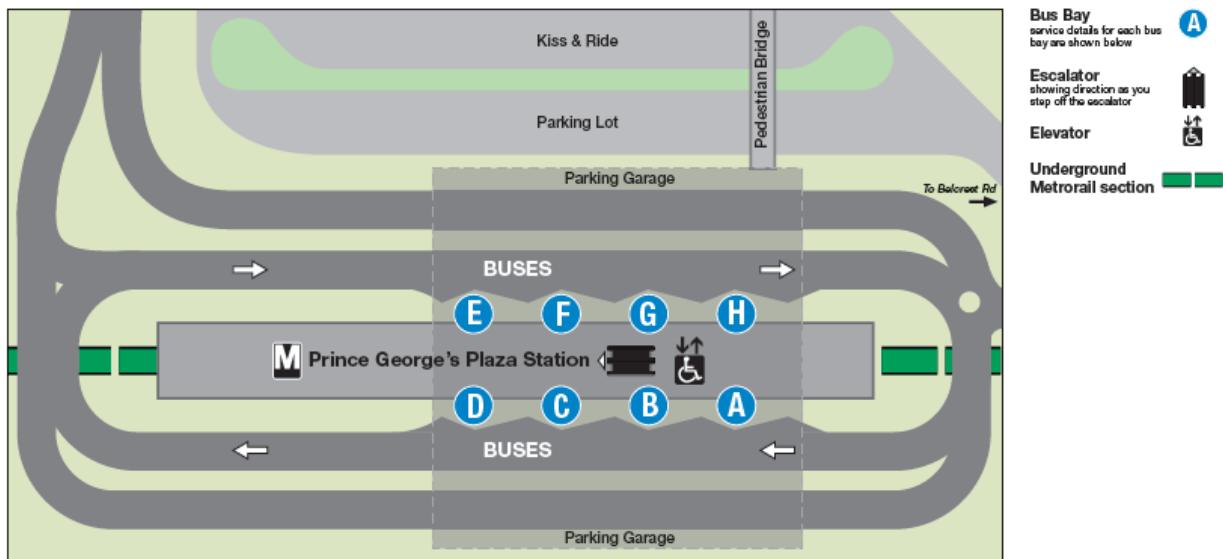
**Figure 12. Site identities**



**Figure 13. Vehicle and pedestrian circulation collision**



**Figure 14. Bike lanes opportunity**



**Figure 15. Existing bus lanes with metro station**

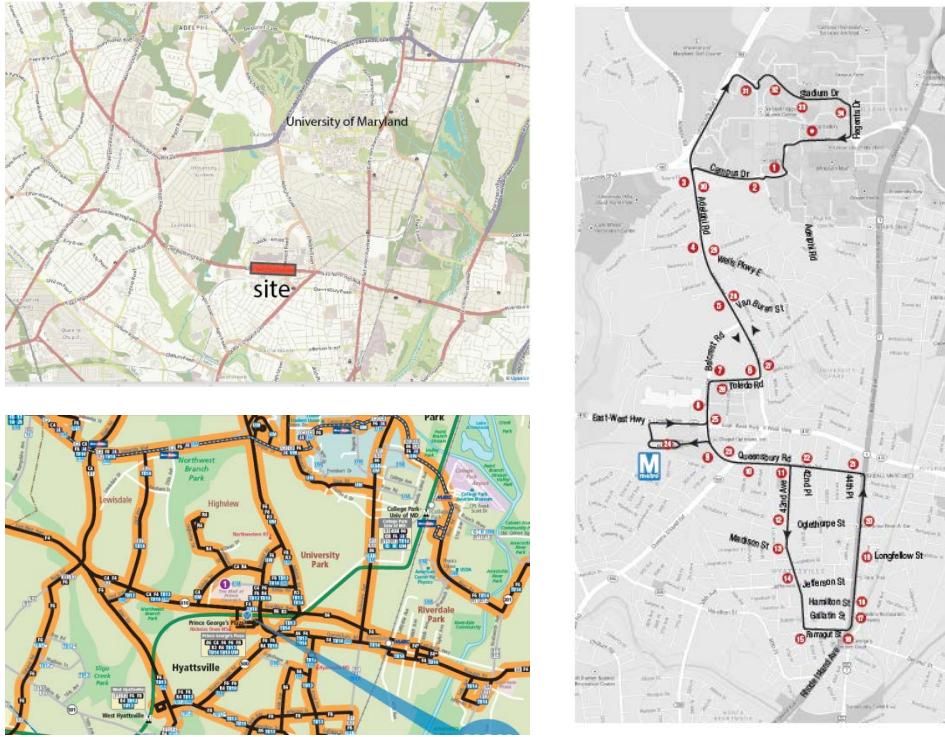
The University Town Center development which opened in the last several years has an occupancy rate of about 60 percent and is pursuing economic development efforts to increase tenancy in the available space.

A study completed by The Washington Area Metro Transit Authority (WAMTA) in 2009 reveals that nearly half of the riders at this location arrive by foot and of the 20 percent arriving by car, the majority of trips are less than three miles and a third of the trips are less than one mile, a distance easily covered by other means if available.

East West Highway is a more notable challenge for non-vehicular mobility. East West Highway is a major barrier and separates the retail and mixed use quadrants of the area from the Metro Station.

A pedestrian bridge is provided at one location crossing East West Highway to enhance connectivity. Though provided, the relative inconvenience of climbing stairs or using an elevator to cross an arterial roadway makes it unattractive to many pedestrians. The image to the right shows this crossing.

The site is located 3 miles away from the University of Maryland campus, the shuttle connects directly from the campus to the site, there are several bus lanes inside the metro station, the area has the great potential for further development.

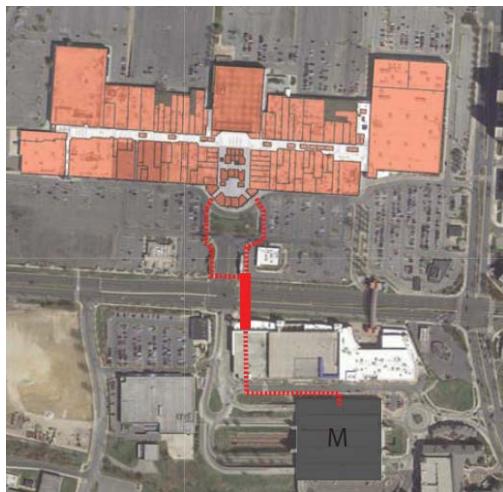
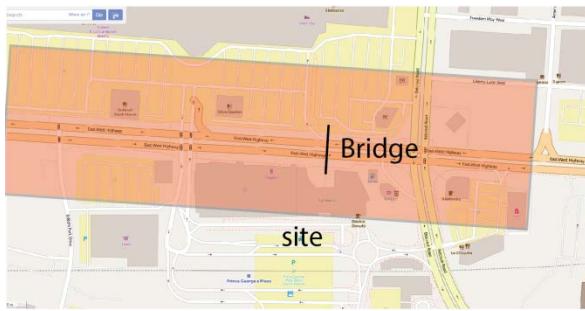


**Figure 16. Shuttle and bus route connect to the site**



**Figure 17 Educational institution and site scope**

There are a lot of educational institutions around the metro station, like the Prince George's community college, Northwestern High School, Edward M. Felegy Elementary School and so on. It means the pedestrian safety is very important in this area. The primary purpose for the site intervention is to create safer, accessible environment.



**Figure 17. Pedestrian connection from the mall to the Metro**

The primary pedestrian connection from the mall to the metro is the pedestrian bridge , the thesis start with different exploration of better connection from the two sides of East-West Highway, looking for a better, safer and more convenient environment.



**Figure 17. Aerial view of the site**

From the aerial view of the site, the single development and the attached amenities cut the whole development area into detached pieces. It's not easy to convince the developer to care about the surrounding context, which will for sure to benefit for themselves in the future.

The character of designer becomes important if the proper design could make the them integrated with interior social connections which will not only satisfy the original functions but also each single development becomes an incentive fa

### Site identity and landmark

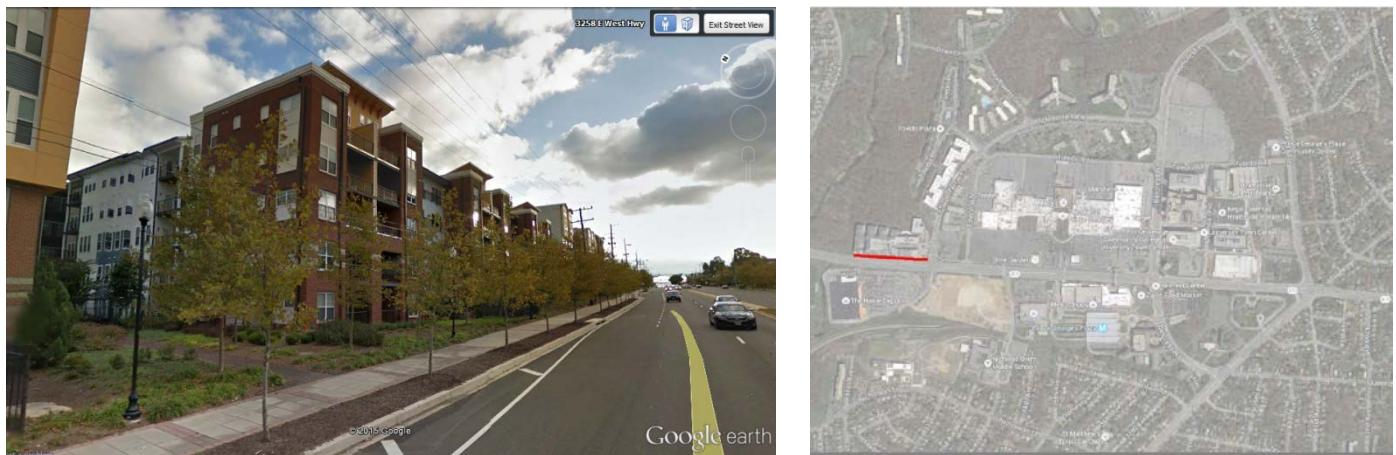


**Figure 18. Different programs on site**

### EXISTING PROGRAMS

The three office buildings (Metro1, Metro 2, Metro 3) has a lot of office tenants, which includes a wide range of government agencies, a post office, the local police department, a daycare center, a medical and dental offices, a music school, the campus of Prince George's Community College. The office programs call for the integration of below grade parking and service around the site.

The 16-story apartment towers prove to be a success, it was filled immediately with students from the nearby universities including the University of Maryland, Howard University, the Catholic University of America once it was built.



**Figure 19. Existing apartment west edge of the development district**

*Convergence as Place: Leveraging Multiplicity as a Catalyst for Community.*"The three forms of convergence that exist within the site are border, program, and attraction.

in fact there is a dramatic disparity in the residential to the south of University directly on the border, at Emerald Street,

The border is soft, as it occurs at a random point in consistent urban fabric where the site affords tremendous access to State Highway 280, as well as Interstate 94, which provide access in all four directions and suggest a possibility for an interface between the automobile and the LRT.

this area is very well suited to become a convenient destination, or at the very least have more to offer travelers as they transition between the automotive network and onto the LRT network.

Despite this residential influx, the area lacks walk ability for day to day activities, and forces residents to drive (or bus) for virtually everything beyond coffee and light meals.

This proposal addresses several of the needs mentioned, by suggesting a *conceivably* financially viable program that uses the same program currently proposed, but injecting it with many other functions and spaces that serve varying groups of users to both draw users in, as well as to encourage interaction between said users.

## Chapter 7 SITE PROBLEMS

### Auto-centric

The Prince George's Plaza metro station area has stronger suburban characters, everything in the area is related to cars. The East-West highway is a state highway that has 250,000 traffic flows per day, the Belcrest Rd has 120,000 traffic flows. There are a lot of large surface of parking spaces for the single development in the area, the shopping mall, the Giant, the Home Depot, the office building in the University Town center all have large surface parking, which barrier the pedestrian movement around the surrounding communities.



**Figure 20 Large surface parking with single use building and chaotic traffic circulation**

And a lot more single used building like bank, CVS disperse randomly inside this area, with the surface parking of 75% vacancy daily. Two gas stations locate at the intersection of the East-West highway and the Belcrest Rd which cause more disorganization of the traffic circulation.

### **Low density**

Because of the poor economic condition and unpleasant environment, the Prince George's Plaza metro station area has low capacity to attract new developers and householders to come here. Low density is one of the most primary characters in this area. Most of the singles use building is detached from each other. The new mixed use and high density development of the university center is not successful with a high percentage of vacancy which stop further development.

The low density also discourages pedestrian activities and causes a series of safety problems because there is very few nature supervision inside this area. However the low density problem cannot be solved by just insert buildings in the site. It needs better connections and accessibility to support new development.

### **Isolation and dislocation**

The mall is isolated by the surface parking and the road infrastructure, based on the configuration diagram below, we can see separation and detachment all around this

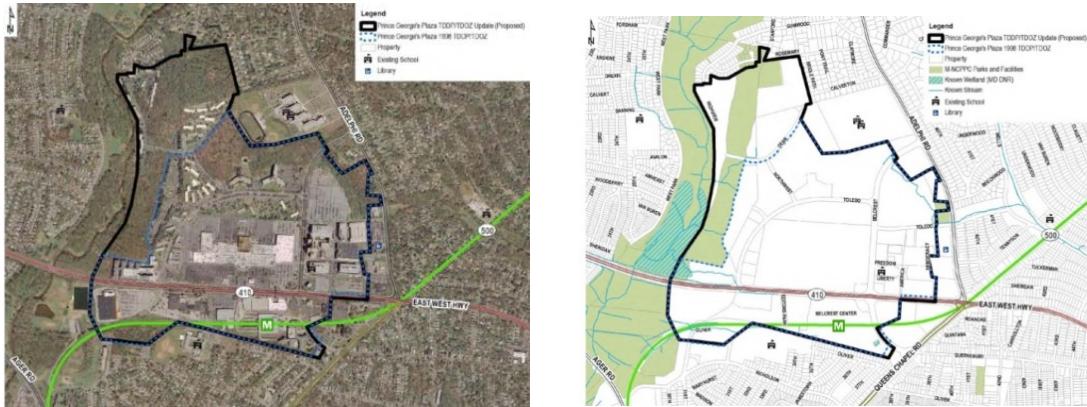


**Figure 21 Site context and configuration**

area, without better planning, single developer do not have the intention to make connections with each other. There is no unified form, shape, material or façade, very few inner connections. The new development and the parking spaces conflict with each other. The context is fragmented and chaotic.

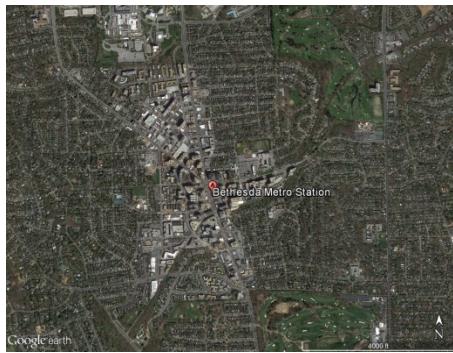
#### **Ad hoc conditions (without integrated plan)**

The diagram below shows the transit development plan approved by the county government. the government encourage new urbanism here without an integrated plan, the new development is piece by piece without close relationship with the metro station. The light rail and mass transit is very important in the process of urbanism, but the fragmented development seems lost the connection with the metro station.

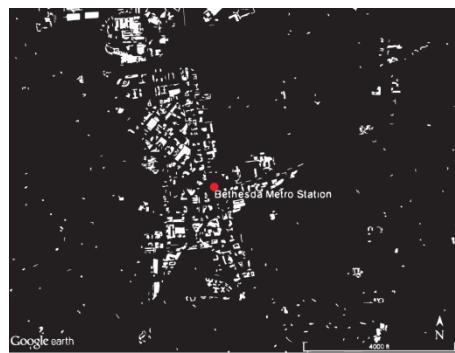


**Figure 22 Transit District Development Plan**

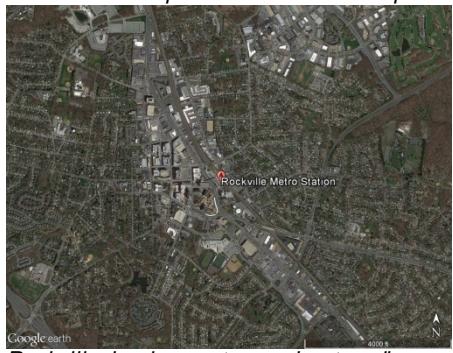
Compared to other urbanized development in Maryland, like Silver Spring, Bethesda, the development there is more compact, metro centered, more integrated and smaller scale. The development in the Prince George's metro station area is mall centered, which means auto-centered. It means that transform the development center from the mall to metro station is more effective to accelerate the process of urbanism inside this area.



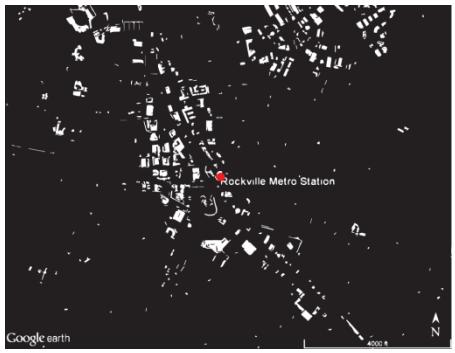
Bethesda development around metro---spread



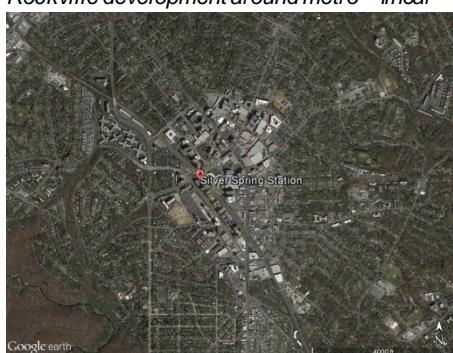
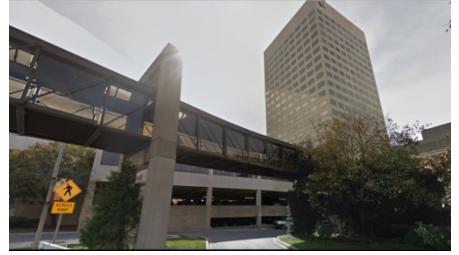
Bethesda---Metro station under the building



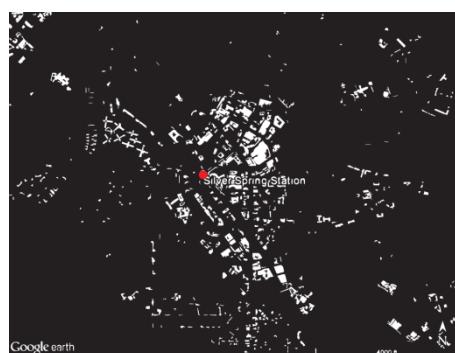
Rockville development around metro---linear



Rockville---Metro station connect the building with overpass



Silver Spring development around metro---encompass



Silver Spring---Metro station above adjacent to the building



Prince George development around metro---detachment



PG Plaza----detachment

Figure 23 Comparison of figure field diagram

By simply analyzing the different plan layout among Bethesda, Rockville, Silver Spring, and the Prince George Plaza, it's clear that the right way to prosper is to develop from the center of the metro station, integrated closely to the surrounding neighborhood. The detachment and isolation is the main problem in the site. We need more efficient connections and diversified development.

The incorporation of the building and infrastructure also need to be mentioned, the metro station locate right underneath the building in Bethesda, overpass connects directly to the building in Rockville, the metro station locates above the highway adjacent to the office building. All the three make both building and infrastructure more efficient., while the smelly pedestrian bridge force people up and down isolated from surroundings causes inconvenience.

### **Too many single use properties**

Most of the properties in Prince George's metro station area owned by developers are single used, such as bank, gas station, restaurant, single retails, supermarket. Most of the properties are isolated by the traffic infrastructure which means to serve them. The single used properties are unappealing and have greater opportunity to be adaptive reuse as mixed use development which can have much more activities and bring vitality to this area.

### **Unsafe pedestrian environment**

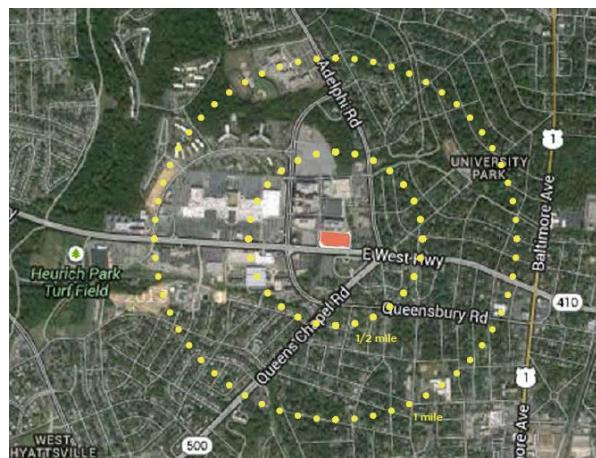
The East-West Highway going across the site has 250,000 traffic flows daily at the speed limit of 40 miles per hour. It's a four-lane highway of more than 100 feet width,

the intersection of the Belcrest Rd and the East-West Highway is the primary pedestrian crossing at the grade level, it is formless and dangerous.

The pedestrian bridge is the primary pedestrian connection between the metro station and the Mall at Prince George's. It is uninviting, underutilized, in disrepair, dark and cage like experience compel pedestrian to climb over the fence to cross East-West highway. The endless surface parking makes the auto circulation conflict with the pedestrian activities.

### **Poor economic performance**

University Town Center — the entertainment, office and housing community has struggled with vacancies and foreclosures since the recession. There is a new Safeway supermarket under construction to attract more people to come to this area to improve the economic situation, the diagram below shows the location of the Safeway supermarket.



**Figure 24 new Safeway location**

However new development will have new traffic problem, with no integrated urban design plan, the new development will cause more inconvenience for the pedestrians.

### **High crime rate**

Crimes committed at Prince George's County Metro stations in 2010:

Prince George's Plaza

Total crimes - 67; 7 robberies, 1 assault, 52 larcenies, 7 stolen or attempted stolen vehicles

Lack of development and activity around some of Prince George's County's Metro stations have made the stations and parking lots ideal targets for criminals.

Communities surrounding Metro stations continue to face high crime rates crime rates in areas surrounding Metro transit stations surpass the rates of crime along the rails

Redevelopment around Metro stations can also be used as a strategy to lower crime, planners and developers say.

"When we create a mixed-use, walkable environment, we create a much safer place," said Cheryl Cort, policy director for the Washington, D.C.-based Coalition for Smarter Growth. "[In that environment] people are active at different times, a variety of people are on the streets, and it creates what we call natural surveillance.

## **High vacancies and underdevelopment**

The entertainment, office and housing community that has struggled with vacancies and foreclosures since the recession The University Town Center development which opened in the last several years has an occupancy rate of about 60 percent and is pursuing economic development efforts to increase tenancy in the available space.

## **The County doesn't offer large blocks of available office space**

Prince George's County leaders and their Congressional representatives have long complained that they have been spurned by the GSA(General Services Administration)

.The County is home to only 3.9% of the office space leased by GSA in the National Capital region. This despite the fact that 25.7% of the federal workforce actually resides in the County.

The County keeps wanting and waiting but the GSA isn't coming, and here's why: the County doesn't offer large blocks of available office space—not the kind GSA is looking for.

Ensuring that planning for new Federal facilities or new leases includes consideration of sites that are pedestrian friendly, near existing employment centers, and accessible to public transit.

The resulting policy implemented by GSA has been to locate offices within a 1/2-mile walkable distance to Metrorail Stations.

The GSA, by and large, chooses to be within walking distance of Metrorail Stations, and Prince Georges County simply does not offer much office space near Metro.

We ran a Costar survey of 50,000+ square foot, contiguous blocks of available office space and found that throughout the Washington, DC region there were roughly 135 options available within 1/2 mile of an existing or soon-to-be built Metro stations. Only two of those were located in Prince Georges County.

If the County really wants to attract federal tenants, it must provide space that the Government can actually occupy *immediately*. That means good quality space proximate to Metrorail. If the County builds that, perhaps they will come. Otherwise, the waiting will continue.

## Chapter 8 DISORGANIZED CONTEXT WITH SOME PROGRESS

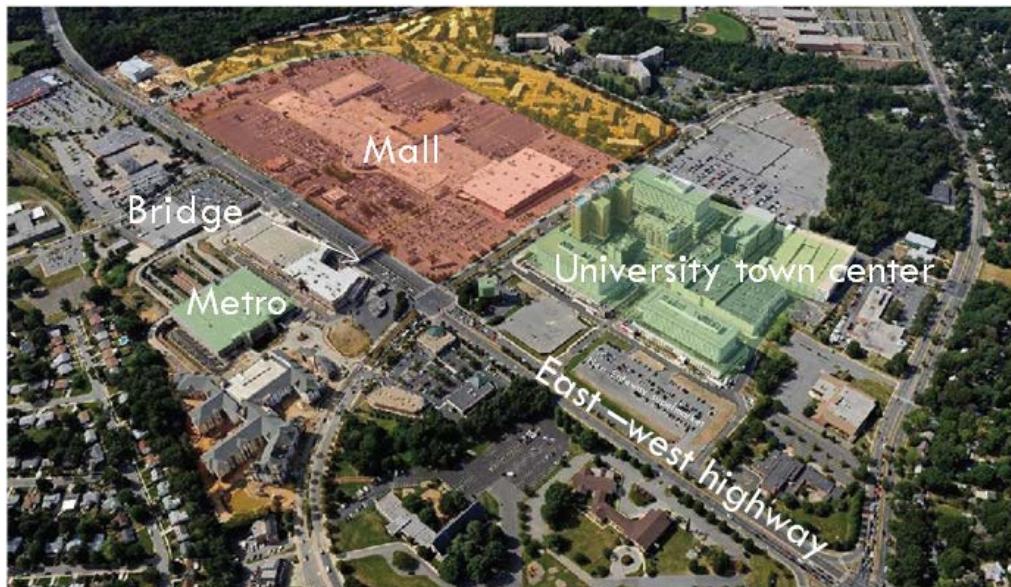


Figure 23 Important components in this area

The image above shows the important elements inside the area, the mall holds the suburban character with a large surface parking surrounding it, the new high density and mixed use development in the University of Town center, the residential apartment isolated by the parking spaces from the mall, the Prince George's Plaza metro station which comes in the area in 1993, try to become the incentive core for new development but failed because of the high speed highway. Different property has different identity, the development in this area is unbalanced and unrelated.



Entertainment

Shopping

Working

Living

Healthy institution

The area is surrounded by the University Park, City of Hyasville and Lewisdale, with a lot of different types of buildings and activities, there is already some urbanized process like high density of student apartment building, pedestrianized street city parking ramps. However, the tension between the suburban context and urban context can be easily sensed. The ill-considered intrusion of urbanism can bring new problems.



**Figure 23 Tension between suburban and urban**

When we go back to history, in 1967, Edward Stone provided new vision for urbanism inside this area, he proposed office buildings with high tower apartments mixed use development , but only the Metro 1 and Metro 2 office building have been built because there is a urgent for surface parking. And as the new development comes in, because the surface parking takes up space and works as a barrier for the new development, the University Town center is not successful as expected.

## Chapter 9 POTENTIAL FOR NEW DEVELOPMENT

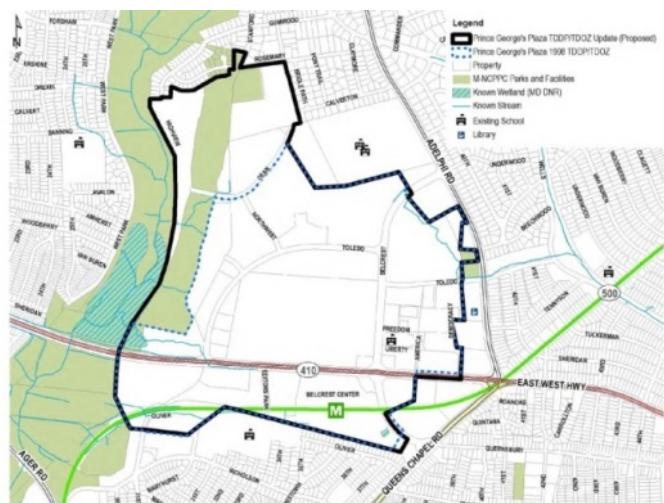


**PRINCE GEORGE'S CENTER**—This model shows the urban community complex designed by architect Edward Durrell Stone for a 105-acre site now named Prince George's Center. (A) designates the completed first Federal building, opened and occupied several years. (B) is the second building that also will have about 280,000

square feet being handled for leasing by Carey Winston Co. The developer of the entire complex is Prince George's Center, Inc., headed by Herschel and Marvin Blumberg. Other proposed buildings would be higher-rising office and apartment buildings and commercial space and a theater expected to be started next year.



**Figure 23** Edward Stone's proposal and construction

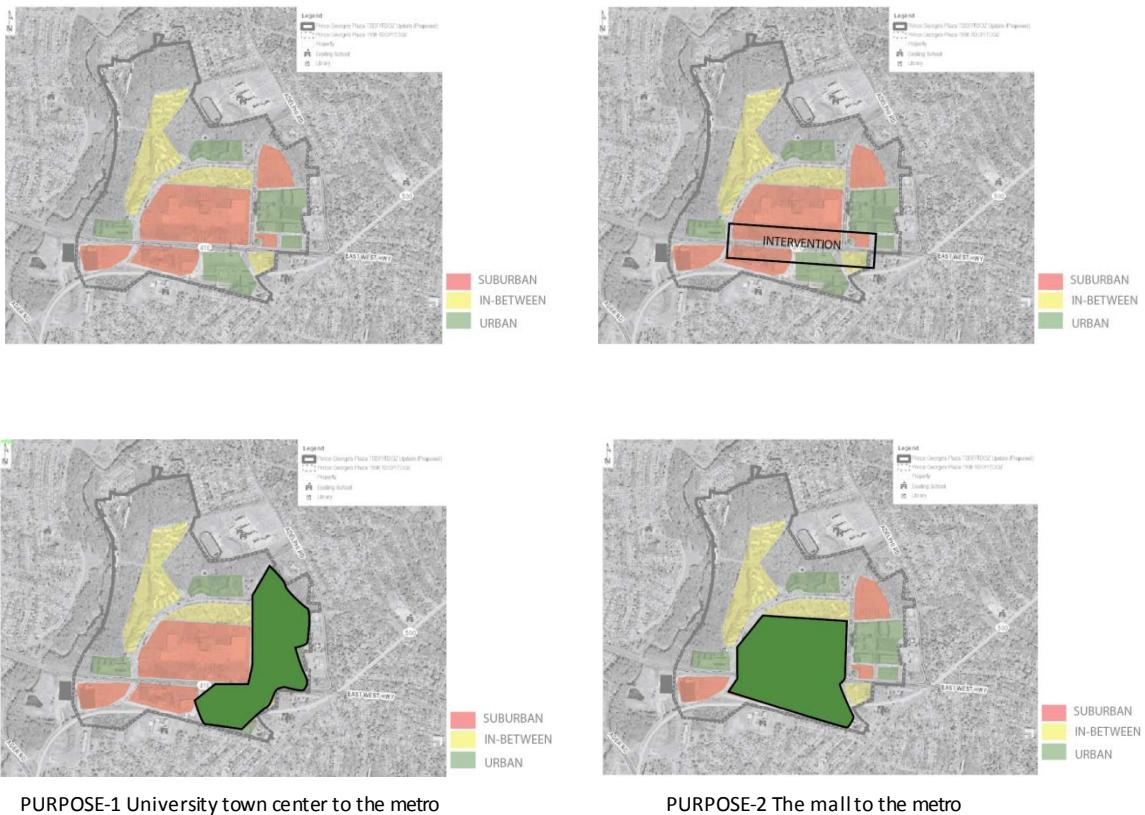


**Figure 23 Approved Transit District without an integrated urban design**

(*A Transit District Development Plan is a plan that guides development around a transit station.*)

The thesis intervention macro scope will be conform with the latest approved Transit District Overly Zone as shown above. The basic goal is to complete the

pedestrian friendly network with efficient approach, use creative arrangement and adaptive reuse to create a more attractive circumstances and convenient way of life. In the end, draw more attention for new development, attracting new employees, new tenants, new households to make this area prosper. The thesis is not mean to change the county plan for the future development, it means to cure what's wrong inside and motivate the development to a healthier, promising future.



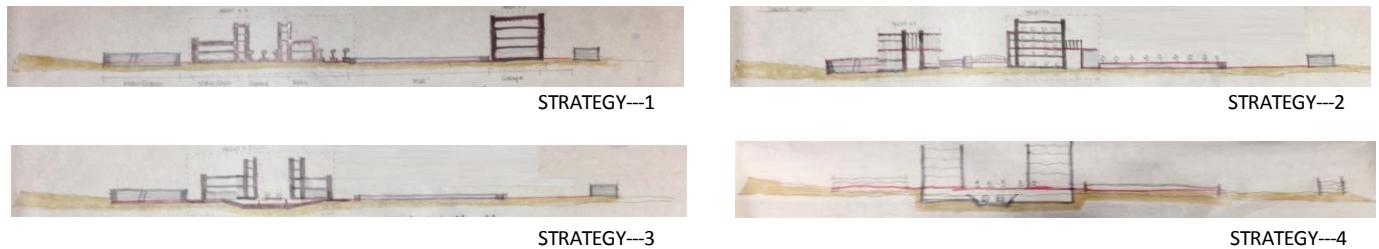
**Figure 24 Site intervention purpose**

The thesis is exploring what is the most effective connection to make a more integrated plan for future development, the connection from the historic mall to the

metro station and the connection from the existing mixed use development are most important moves for building a whole interconnected development in this area.

## Chapter 10 UNIQUE OPPORTUNITIES AT THIS SITE

### Potential for designing in section



**Figure 25 Different strategies in section**



*Existing Section through metro station-bridge-mall-community*



*Existing Skyline*

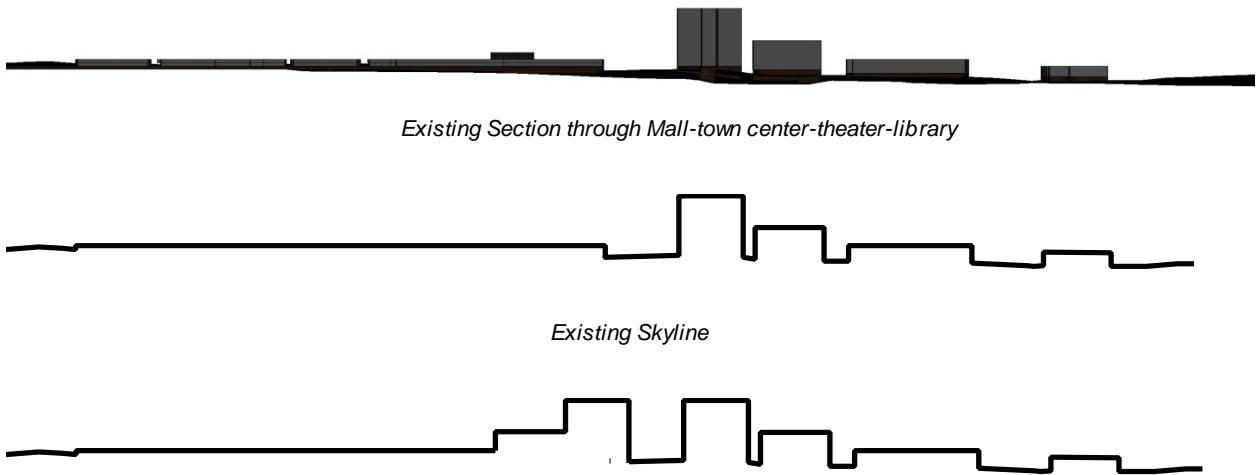


*Proposed Skyline*

**Figure 26 Original site section from the metro to the mall**

The skyline of the section through metro station, overpass and the mall shows the infrastructure plays an isolation and barrier role for the pedestrian. The question of abandoning the dysfunctional infrastructure or with more integrated approach, it might

be a good idea to make new identity by incorporating and celebrating the existing infrastructure and the tower building to make a new gateway for the whole area.



**Figure 27** section of **East-west Highway**

The first unique opportunity for intervention in the site is potential for designing in section, based on the new connection urgent need, there are varies of different intervention could be made in section for better quality of the pedestrian experience and convenience. Intervention in section could be more effective than in plan, because bringing people down to the ground level will encourage more activities and bring more freedom for the pedestrians.

## Suburban/Urban tensions overcome without extensive demolition

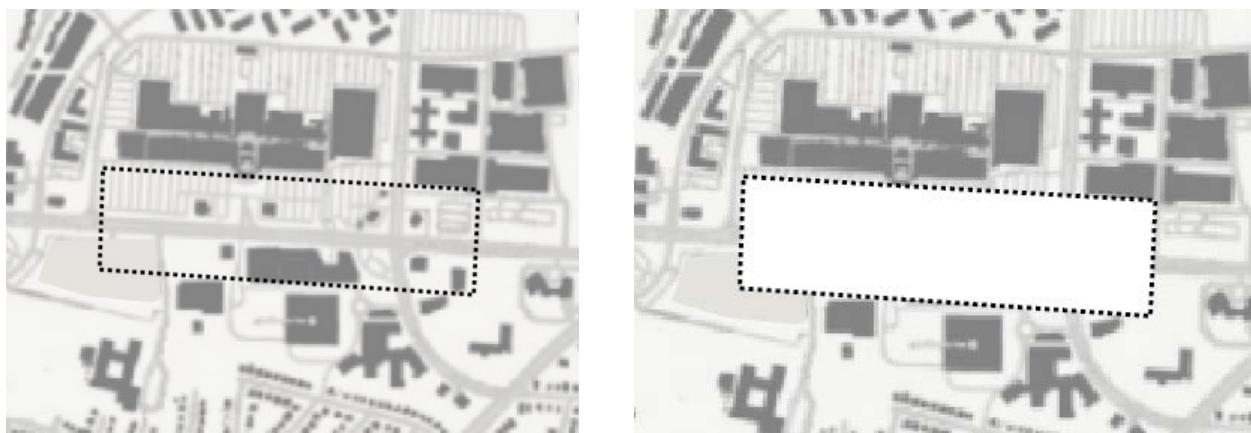


Figure 29 Demolition scope

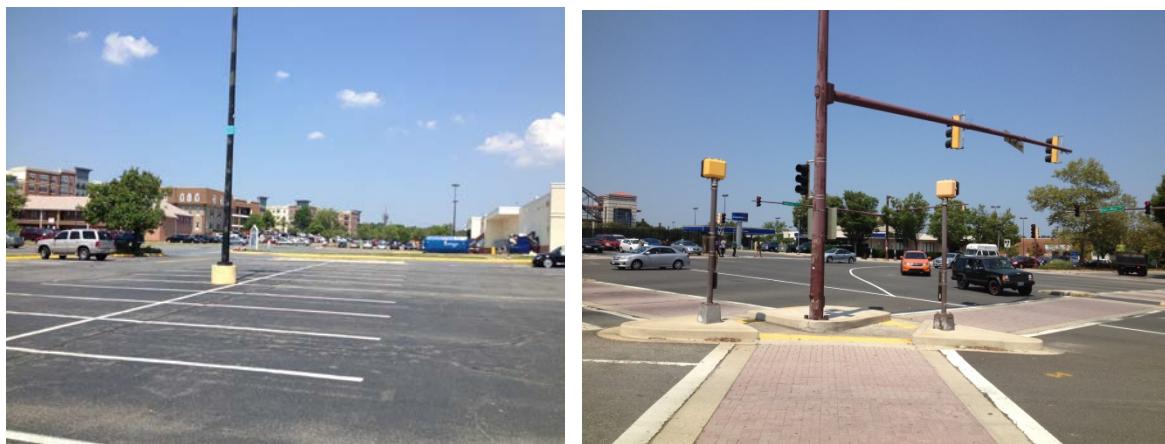
The suburban infill and regeneration for vitality needs better connection and the transformation from single use property to mixed use block. The intention could be fulfilled with easy demolition. The intervention of my site for new connection and infill only need to take away 7 single use properties including 2 gas stations.

## Chapter 11 THREE KEY ISSUES NEED TO BE SOLVED



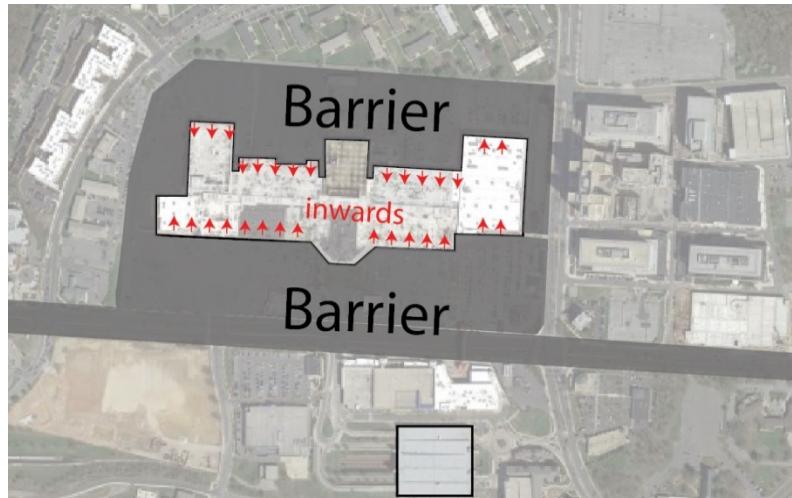
**Figure 30 Demolition scope**

**Connection failure-----** *The height of pedestrian bridge compels pedestrians to jump the fence to cross East-West Highway. Pedestrian bridge is underutilized, uninviting, and in disrepair*



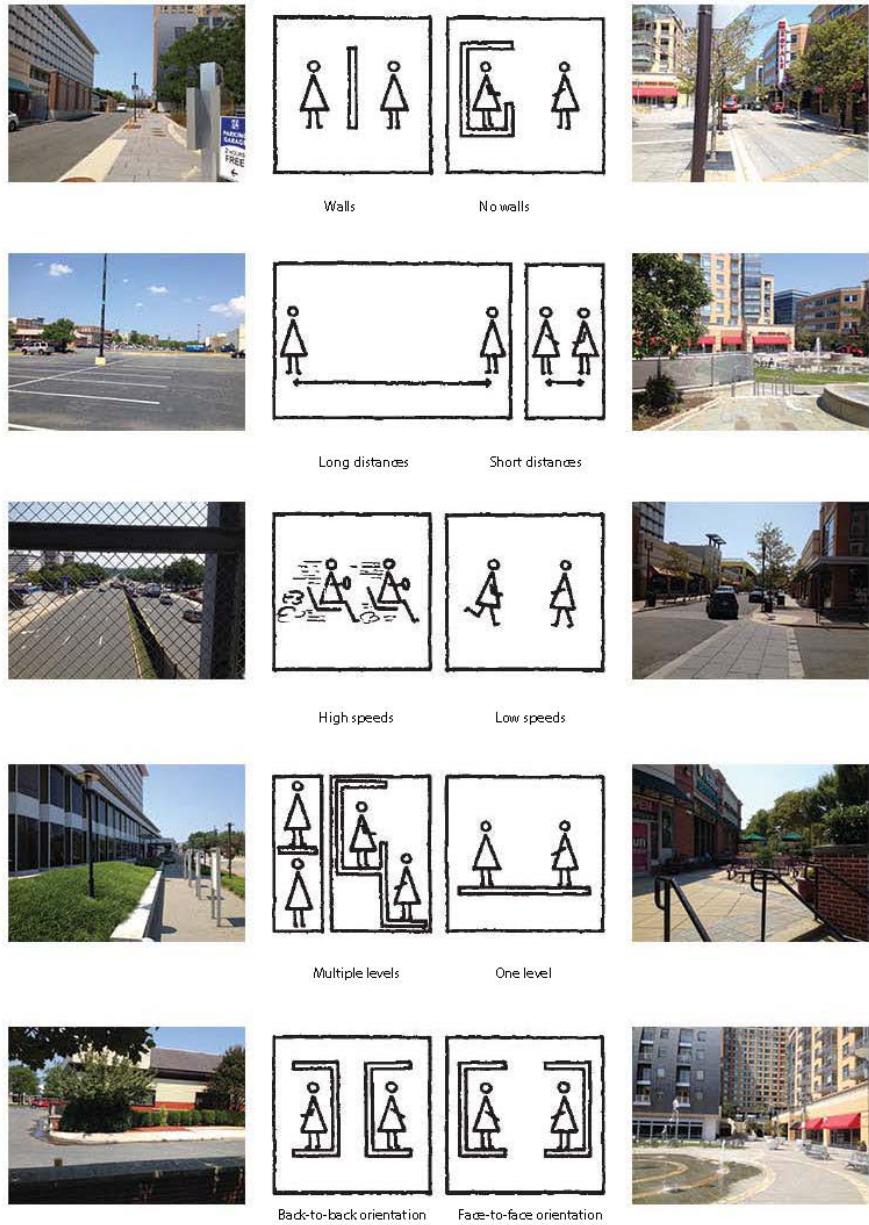
**Unfriendly car and infrastructure----** *underutilized parking lots barrier the community and the mall, create impression of neglect*



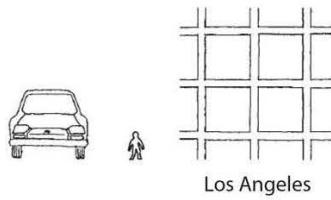


**Public destination under-utilized----** *Metro and mall are underutilized, they have greater capacity and are too much inward focused*

The pedestrian environment is primarily decided by the important destinations and the surrounding amenities, it will make no changes if the thesis only make changes to one small portion of intervention. It is important to understand how the public programs work, and how they are served by the infrastructures. The right way to repair this area is to rebuild the connection for each other, understand pedestrian's activity, There is also a necessary to seek potential for new development, the abandoned and underutilized infrastructure can be creatively incorporated and shared with new development. It will be pleasant to see the elements inside could be mixed use other than single use detachment.

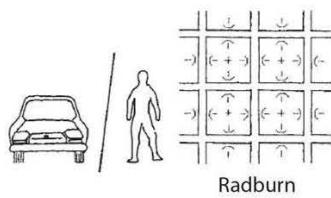


Good and bad of existing site and the reasons



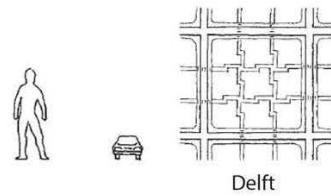
simple traffic system  
fast-moving traffic  
low degree of traffic safety

The streets are unusable for anything but vehicular traffic.

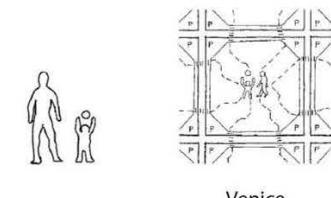


complicated, expensive system  
many costly underpasses  
in theory appears to improve traffic safety,  
functions poorly in practice

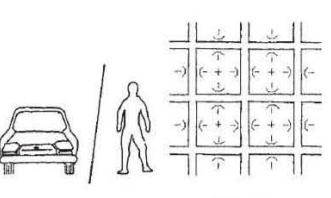
pedestrians follow shorter routes  
rather than safer, more lengthy, routes.



simple traffic system  
slow-moving traffic  
straightforward, and safe  
maintaining the street as the all important public space.



pedestrian city  
Transition from fast to slow-moving traffic  
higher safety level and greater feeling of security



fast-moving traffic  
low degree of traffic safety  
costly underpasses

Learn from history experience

From the past experience, it shows us why the fast speed traffic system work as the insulation for pedestrian in Los Angeles, why overpass and under pass is not people's favorite Radburn, why narrower street with slow speed traffic is ideal, cost effective, safe and pleasant for pedestrian

## Chapter 12 SITE HISTORIC CONTEXT

### History development reasons and results

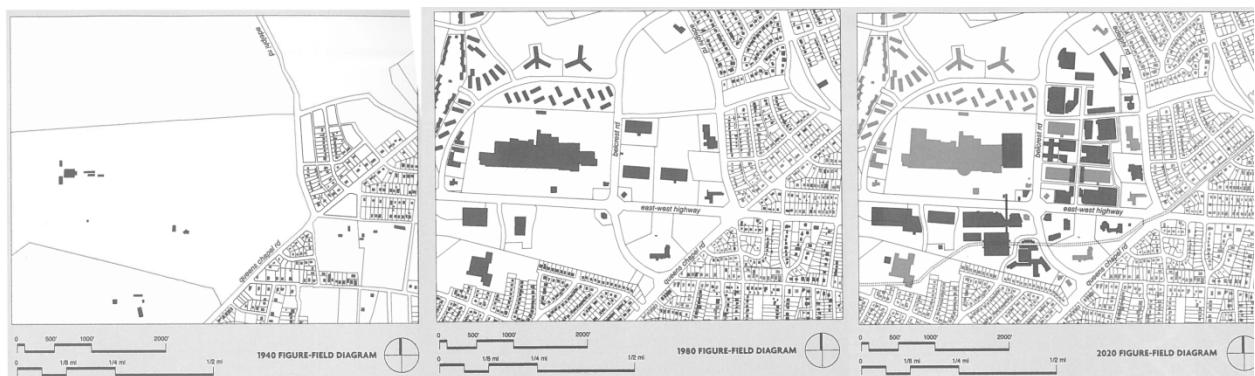


Figure 28 Historic figure field diagram

1959---The county's first regional shopping mall Result: emphasis on the automobile and the resultant proliferation of traffic and road building

1963, 1968, 1971---Mid-rise office building Metro One, Metro Two, Metro Three were built, surrounded by large surface of parking instead of plazas, gardens, shops and towers Reason: additional development stalled without rapid transit line



*Open mall to closed mall*

1993---PG plaza metro station open Result: The transit oriented development overlay zoning district was established Conclusion: short vision development will always cause new problems

### Edward Stone design Proposal and result



**PRINCE GEORGE'S CENTER**—This model shows the urban community complex designed by architect Edward Durrell Stone for a 105-acre site now named Prince George's Center. (A) designated the completed first Federal building, opened and occupied several years. (B) is the second building that also will have about 280,000

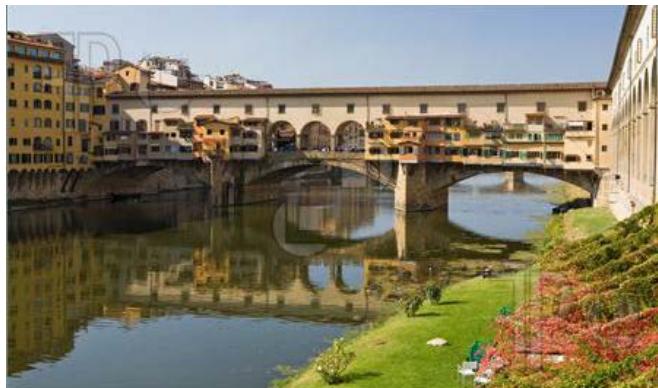


**Figure 28** **Edward Stone proposal and reality**

The mixed-use development proposal from Edward Stone is half succeed because of the unexpected need for surface parking, after the introduction of the rapid transit line, the new suburban infill could be proceeded---the new university town center

Throughout history, the site is struggling with the tension of existing context and the new urbanism. Suburban retail with open air solution--Enclosure and additional retail---get disrupted when the metro comes in in 1993

## Chapter 13 PRECEDENTS STUDY



Ponte Vecchio Bridge Florence Italy



Harvey house – Illinois, Chicago



Tarrant County College, TX



Highway cap for I-95

The precedent study shows two different perspective of view to make better connection, the Ponte Vecchio in Florence shows that architecture could be a connection media for pedestrian to cross the river. The Illinois Oasis works not only as a connection bridge but also becomes a place people could stay, relax and watch.

The sunken plaza in Texas helps to separate the pedestrians from traffic flow but the dark experience underneath the bridge is unpleasant and unsafe.

The highway cap for I-95 keeps the pedestrian at the grade level with nature supervision, and wraps the bridge with better architecture program.

## Chapter 14 DESIGN APPROACH IN PLAN

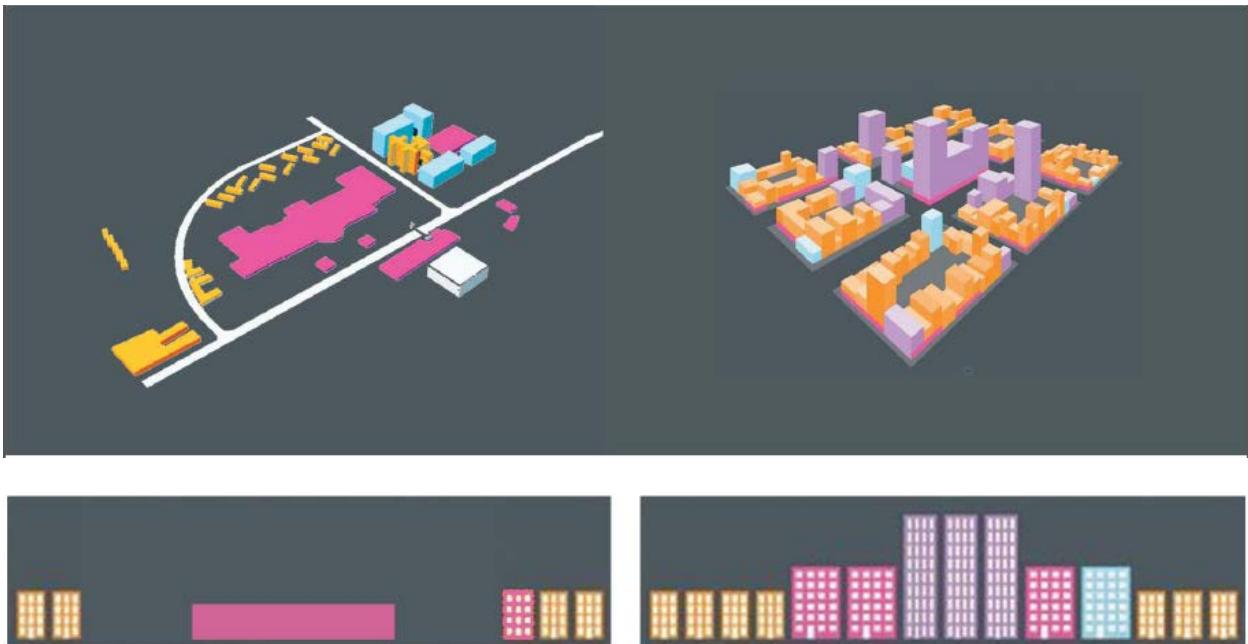
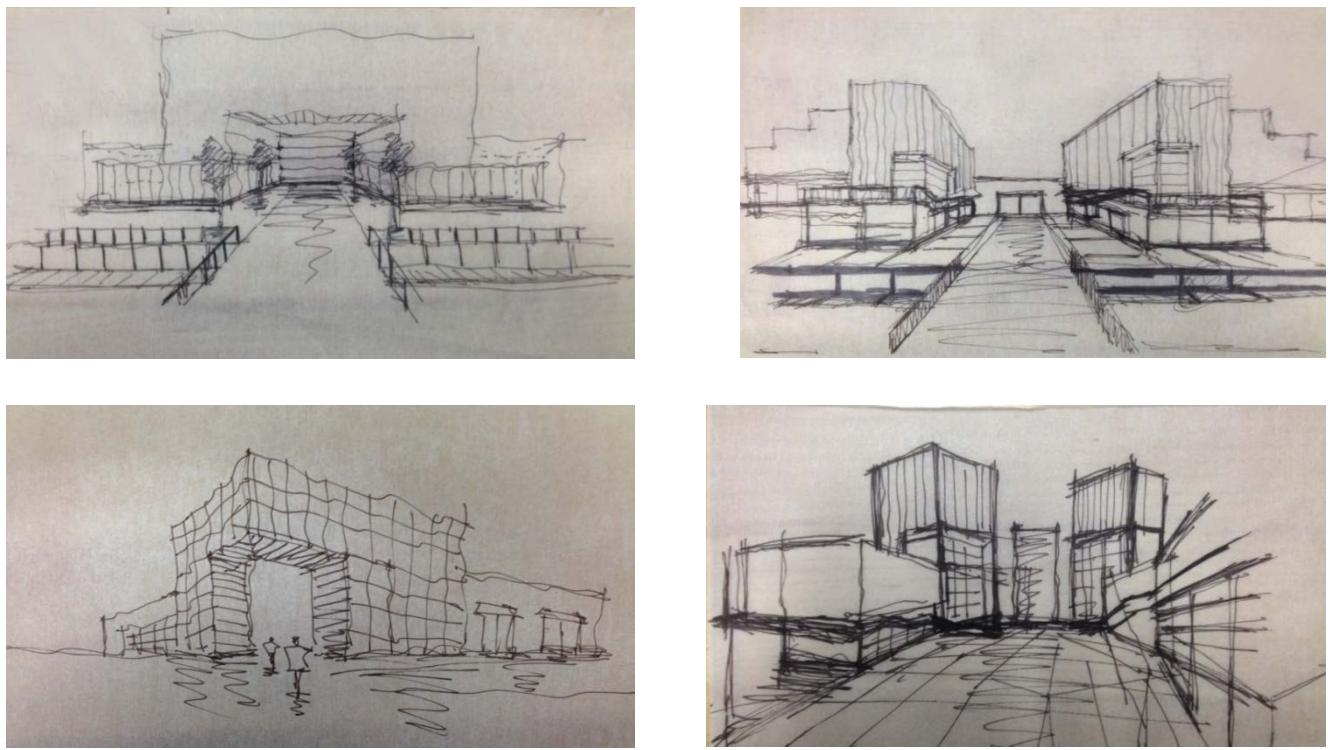
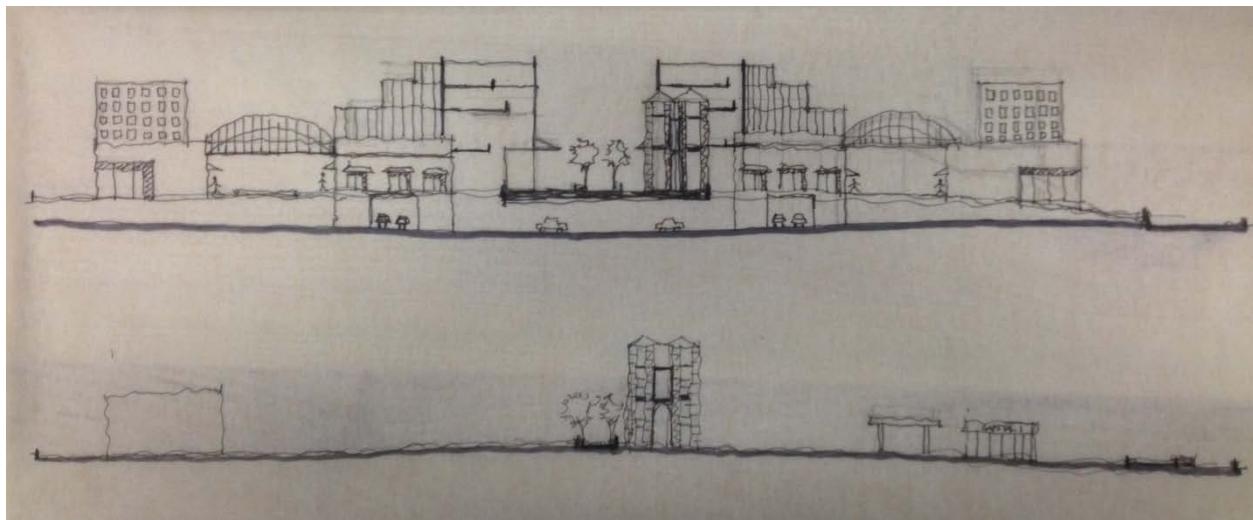


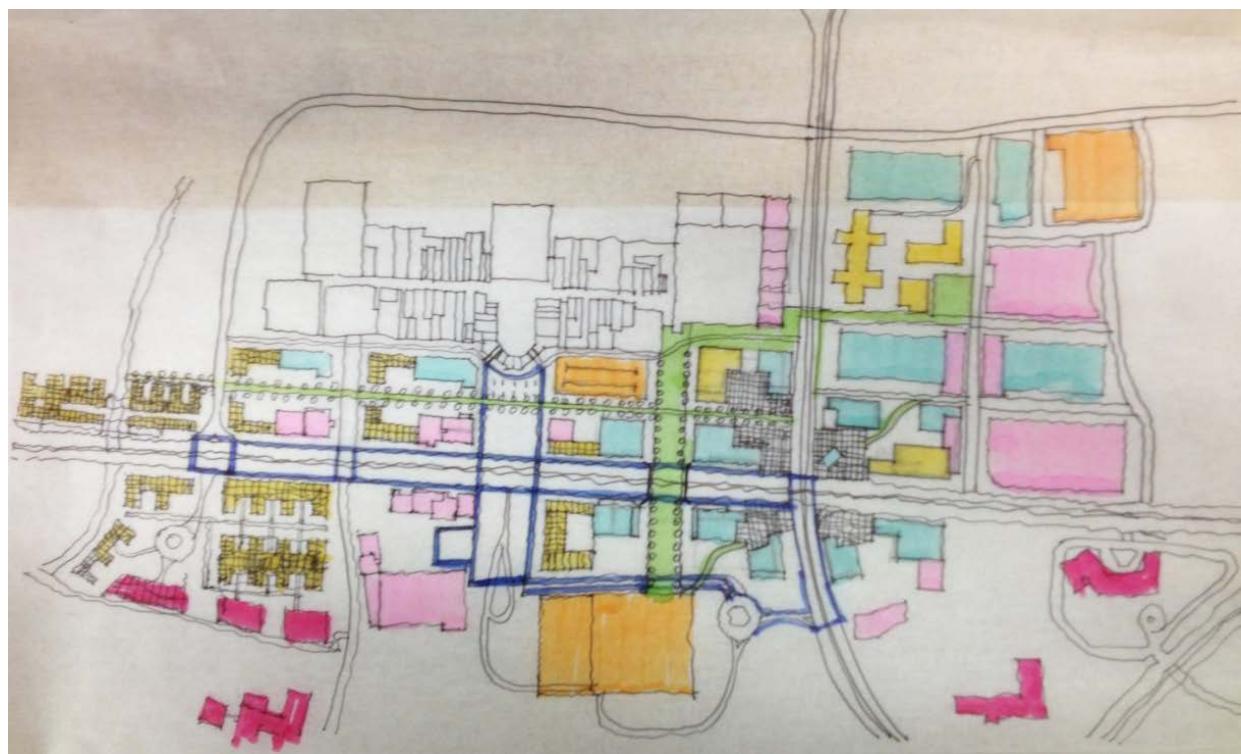
Figure 28 single use property to mixed use block



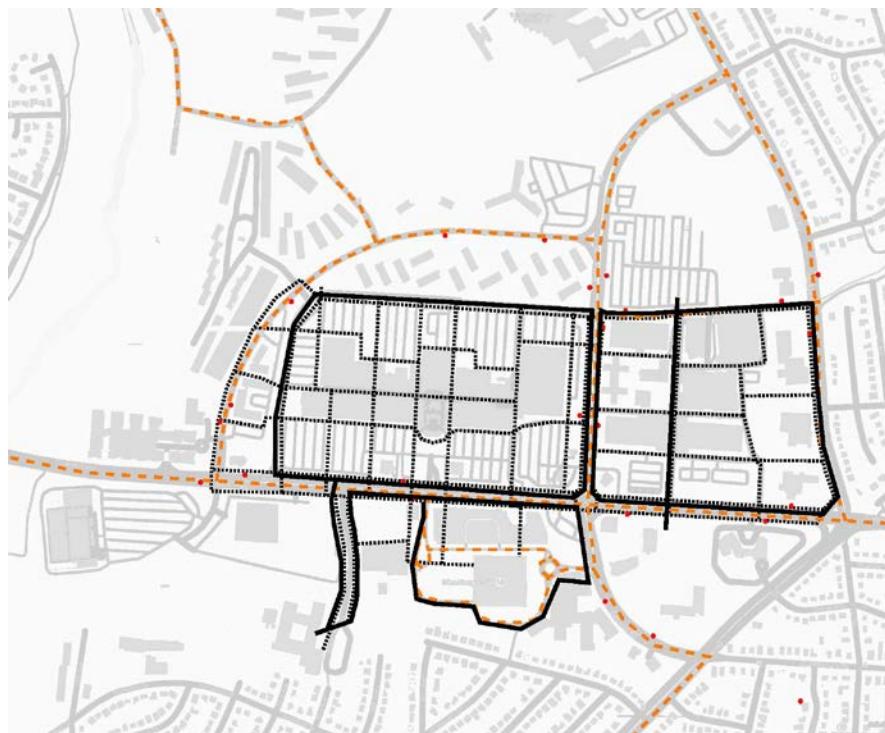
**Figure 29** Anchor gateway building identity for Metro, Mall, intersection



**Figure 29** Anchor gateway building identity for Metro, Mall, intersection



**Figure 29 Anchor gateway building identity for Metro, Mall, intersection**



**Figure 29 Circulation connection proposal**



**Figure 29 Repair target: The Mall, Metro station, intersection and parking lot**

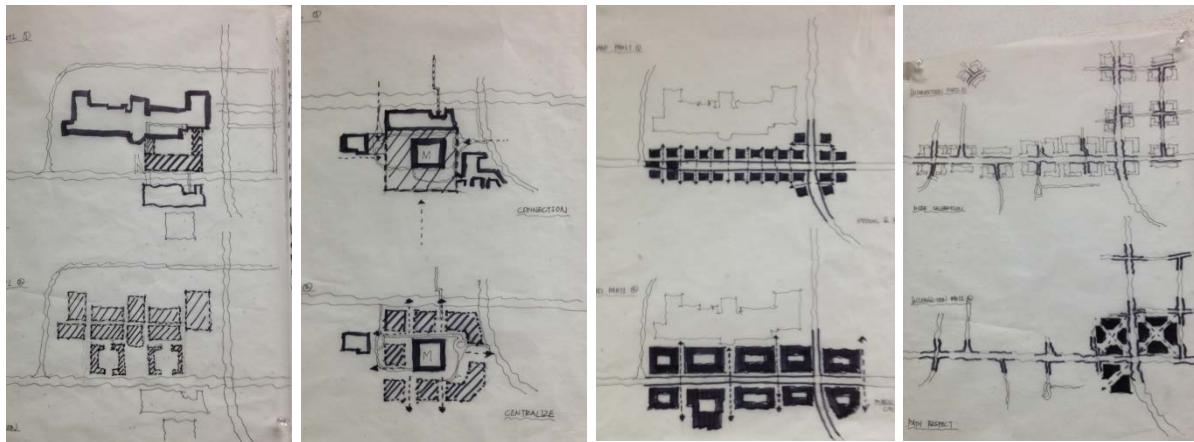


*Infill approach phase 1---historic mall and intersection*



### *Infill approach phase 2---metro station*

For the macro scale the thesis is trying to test out the capability of infill program and make sure the circulation network is clear and convenient. The thesis also takes the variation of public and private experience into consideration



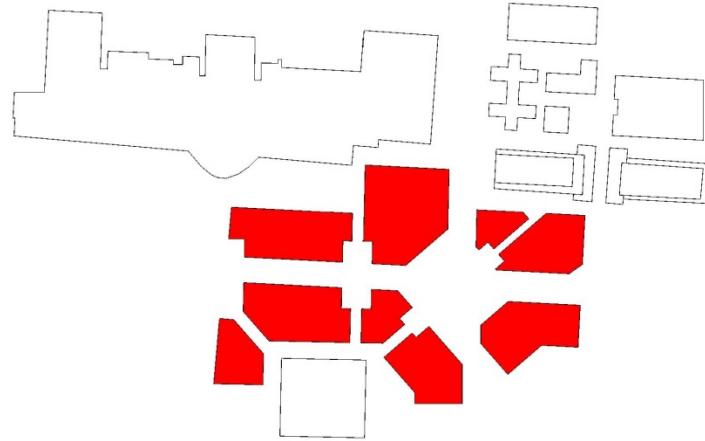
For the micro scale, the thesis focuses on how to fix the prominent problem: the connection and the poor served public destination. With four parallel approach: mall revitalization, metro station retrofitting, state highway pedestrianization, node celebration, the thesis is trying to test what is the inside problem causing the dysfunctional situation.



*Existing pedestrian infrastructure (black dash line) and pedestrian flows tendency (red line) between public destination to the mass transit center*



*The frequent activity spot (red) and the proposed activity spot (yellow)*

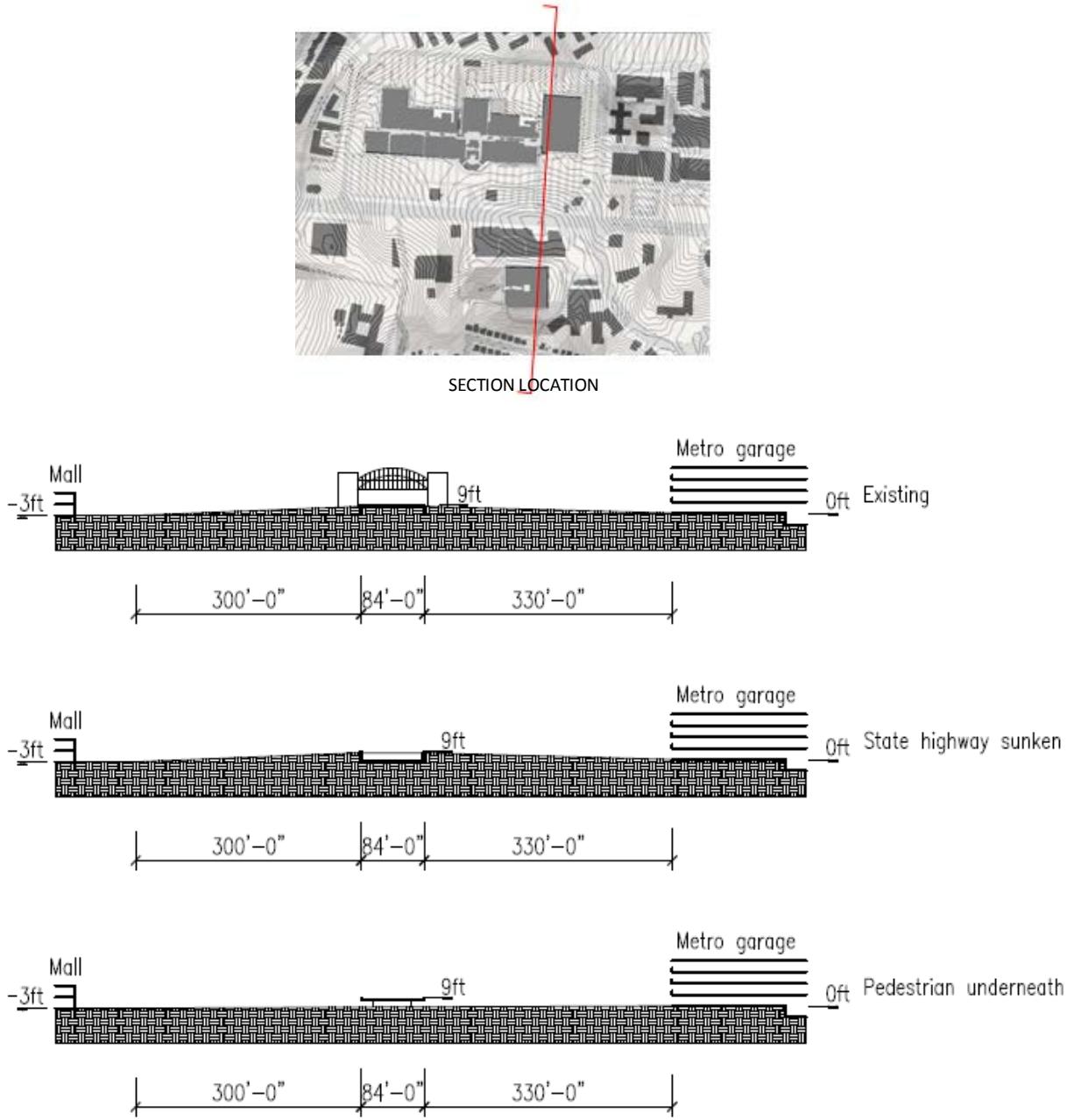


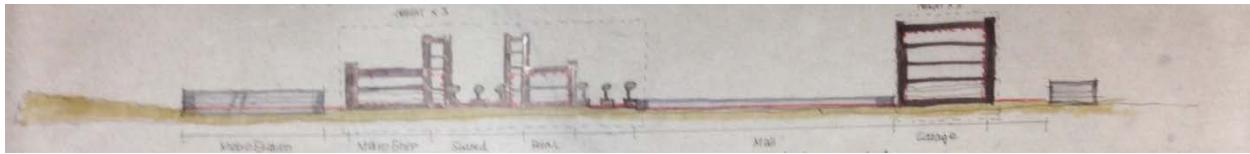
*Proposed architecture form works for new efficient connection to public destinations*

The thesis draw the conclusion that movement of pedestrian should be celebrated by any means, urban planning and architecture form should conform the circulation by any means, and big destination should be open and connected, should not be concealed. Once the connection becomes efficient, it will benefit the development.

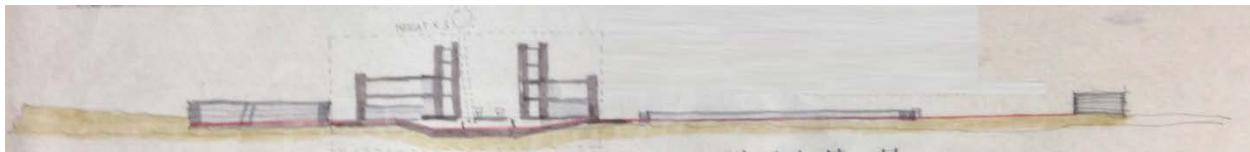
## Chapter 15 DESIGN APPROACH IN SECTION

1. Different strategies for building reconnection across the East-West Highway

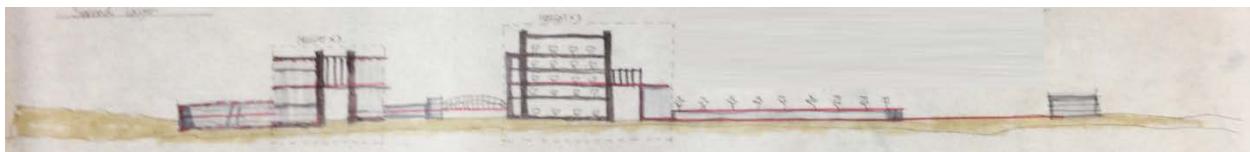




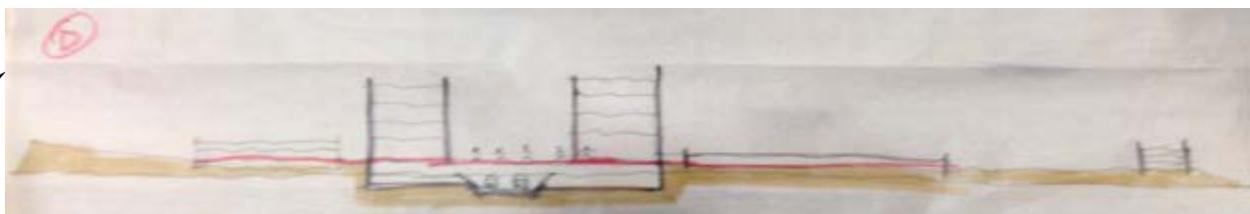
*Redesign connection Part 1---distribute traffic flow, relocate parking---compress traffic obstacles*



*Redesign connection Part 2---separate pedestrian and vehicles ---sunken*



*Redesign connection Part 3---incorporate the bridge, develop the upper layer for pedestrian---elevated*

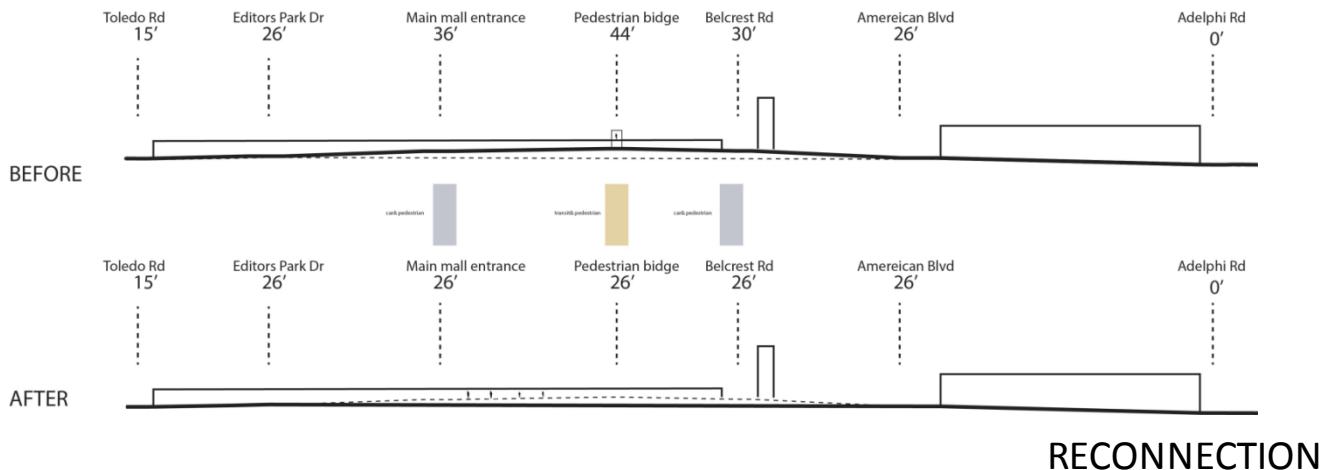
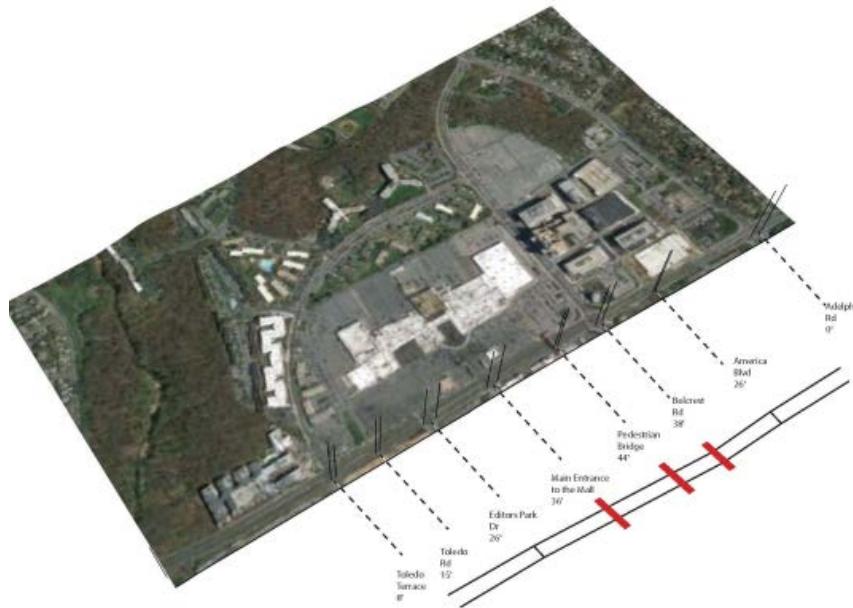


*Redesign connection Part 4---Depressing highway underneath pedestrian*



The connection between the mall and metro station could and should be a more attractive way. And people prefer direct and convenience rather than safety. Forcing people up and down will cause them to cross the highway at grade level no matter how high the fence will be.

The reason for choosing the depressing highway strategy is pedestrians always prefer the grade level, by doing this, the new connection gives much more freedom for different activities and separate different modes of transit to n vertical levels



- Shaving the top of the hill by depressing east-west highway
- Bring bridge crossing to grade
- Eliminate three traffic intersections with traffic lights
- Tripling amount of parking to support new development

## Chapter 16 MASTER PLAN PROPOSAL



Figure 29 Existing conditions

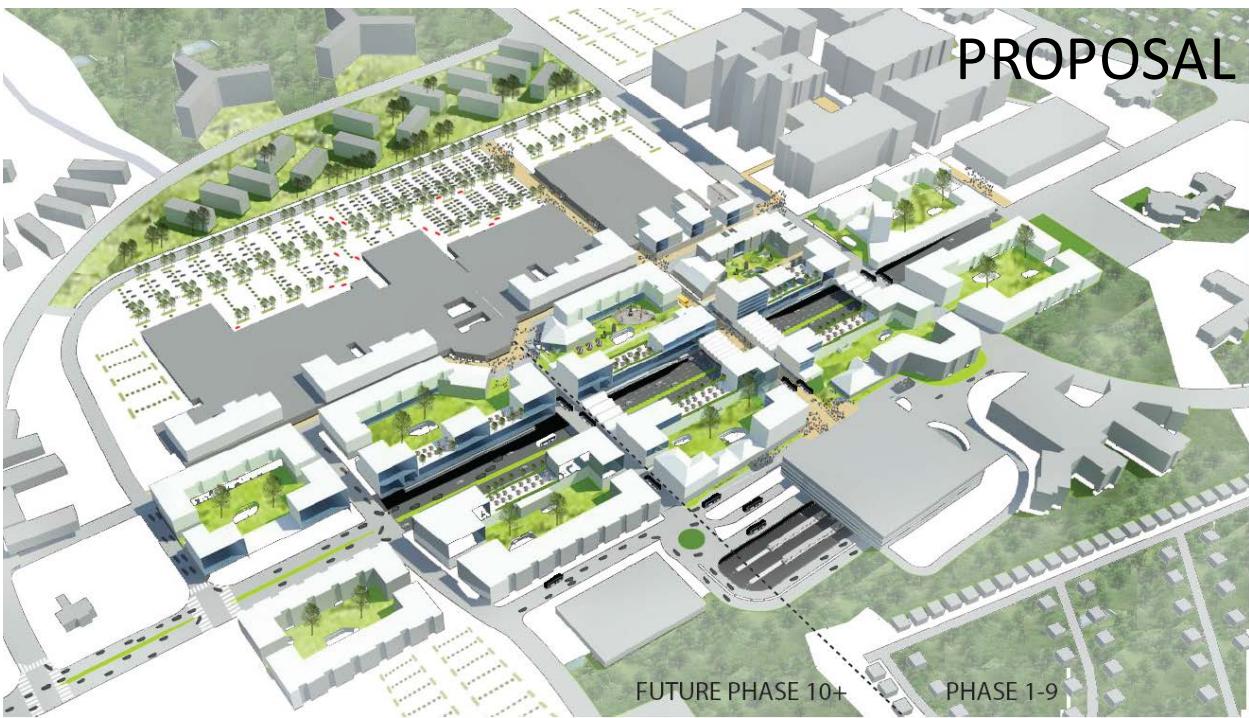
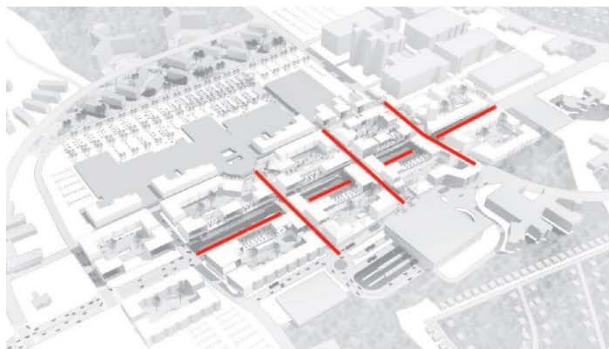


Figure 29 Proposal

The depressing highway and new connections decrease the conflicts between the vehicle circulation and pedestrian circulation. The courtyard form of development give more opportunity for more private space for people to stay. the underground parking ramps which connect directly to the depressed highway help support the new development without future parking issue. The diversity of different new programs inside the site makes the property more attractive for new developer to come and open up new opportunity for new development for the mall. The green perforations works as the entrance for the parking ramp bring more vitality to the site.

## Chapter 17 URBAN DESIGN PRINCIPLES



CIRCULATION



COURTYARDS



STREET CONNECTED ARCHITECTURE



NATURAL VENTILATED AND LANDSCAPE PARKING

Poorly planned urban expansion is increasingly distancing people from jobs, services and the opportunities that enable them to live a high quality life in cities.

The new proposal with sunken highway and the new construction of underground parking ramps is trying to bring convenience for people's daily life. By making the infrastructure better serving the new development, the property value could increase tremendously.

There are four main principles related to this new urban design approach:

The first principle is the new circulation of different transit modes, the new circulation not only solve the connection problem across the highway but also opens up opportunities for the metro and the mall to prosper.

The second principle is the courtyard principle, the different courtyards help to provide private spaces in the site and regulate the grids for better navigate pedestrian through the site.

The third principle is street connected architecture, the architecture constructed on site could be connected to multiple streets and are more accessible both inward and outward.

The fourth principle is natural ventilated and landscape parking, the green perforation brings plenty of nature day light, ventilation with entertainment activities in each of the courtyard.

The new proposal complies closely with transit oriented development in the transformation process from suburban characters to the urban characters.

Based on 7 Principles for Transit-Oriented Development By Luísa Zottis

Cities can ensure TOD by focusing on the following seven principles:

### **Quality Public Transit**

"Public transit is strongly linked to urban development. High quality, convenient transport depends on dense and connected neighborhoods. The goal of a transport system is to connect a high number of riders with the city in a comfortable, efficient, and affordable way."

The urban design proposal provides high quality public transit within walking distance to the metro station and the bus stops. The new mixed use and high density development encourages pedestrian activities and public transit ridership.

### **Active Transport**

"The interests of pedestrians and cyclists should be at the heart of urban planning. Decision making should shift residents—particularly car users—to active transport. Many commuters already take two non-motorized trips on a daily basis by walking to and from transit hubs to their homes or cars. It is important to build on this and encourage non-motorized transport holistically."

The whole development is within ½ miles radius, the distance is comfortable for pedestrian activities, the mixed use development bring diversity experience to the walkable blocks.

## **Car Use Management**

“Car use and parking policies play an important role in creating a safe, human-oriented urban environment. Car infrastructure is supported with four times the amount of investment that public transit receives.”

The new development does not expect to sacrifice the benefit of the car users, but to rearrange the car infrastructure and make it separate from the pedestrian flows. The car activities become organized and the parking become much more accessible to the upper development.

## **Mixed-Use Neighborhoods with Efficient Buildings**

“A mixture of land uses enhances the local economy by densifying and diversifying the design of the community. Mixed-use neighborhoods favor short trips by foot or bike. Similarly, buildings should minimize how much energy and water they consume and require for building and maintenance.”

The new mixed use development has a wide range of programs: offices, residential units, daycare center, retails, cafes and bars. The buildings have sustainable techniques such as green roof, PV panels to help save the energy. The permeable paving and environment friendly vegetation with green perforations inside the courtyard enhance the pedestrian and biking experience.

## **Neighborhood Centers and Vibrant Ground Floors**

“A built environment with adequate public space promotes social interaction between residents. Sustainable urban communities must be sufficiently dense and

contain a variety of uses that are complementary to residential life. Public spaces should be connected to the urban transport network and serve as vibrant, human-centered places of activity.”

In the existing context, there is a huge surface of underutilized parking area but very few public gathering spaces. The new proposal defines public spaces repetitively with different functions, providing random encounters and diversity of activities.

### **Public Spaces**

“The purpose of public space is not only to enhance public life and social interaction, but also to provide a safe environment for pedestrians and cyclists. Public space is the place of encounter, exchange, and circulation within a community. All individuals have the right to access public spaces, regardless of personal, social, or economic condition.”

The new public places with children’s playground and vegetation give people plenty of opportunities for communication and connection to the nature. The safer environment brings stability to this area and attracts new developers and householders to this area.

### **Community Participation and Collective Identity**

“Community participation is essential to building a vibrant, inclusive neighborhood that is safe and equitable. Stimulating community participation creates a more equitable, harmonious relationship between varying social groups living in the same area. Respecting the unique identity of local communities results in a higher share

of residents engaging in civic, cultural, and economic activities, generating a sense of belonging and ownership of the city. ”

The courtyard includes two main parts, the offices which are primarily being used in the daytime and the residential units which are primarily used in the night time. the design approach is trying to keep the neighborhood 24 hour occupied and watched. With a series of activities such as retails, cafes, gyms, daycare center, and playgrounds the new neighborhood will be thriving with a sense of belonging.

### **Energy efficient community**

Another design principle is how to make an energy efficient community, in the book “The hidden potential of sustainable neighborhoods”, the author Harrison Fraker said” While there has been great progress in the energy efficiency of buildings over the past forty years, buildings alone do not include the transportation and infrastructure systems (energy, water, and waste) as part of the design process, and large renewables in remote locations rely on long, inefficient, and vulnerable power lines. Increasingly, the neighborhood scale (from city block to district) is being recognized as an opportunity because it aggregates all the systems and flows. It has the potential to integrate the design of transportation, buildings, and infrastructure while engaging the design of the public realm as part of the system.”

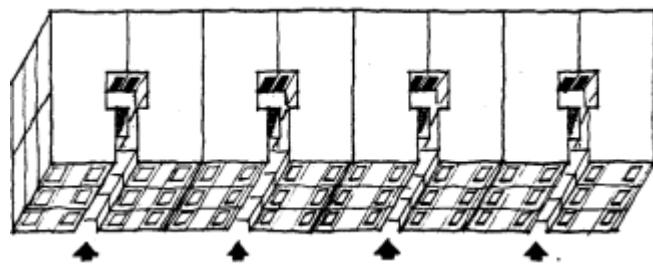
The design approach is taking the effort to engage the architecture in the transportation and infrastructure systems. Seek the sustainable potential inside the

neighborhood. The building forms, green infrastructure and perforations are all parts of the system which contribute to an energy efficient community. This might be expensive at present, but it will bring the quality, luxury, and identity that people want.

### **Defensible Space: Deterring Crime and Building Community**

The high crime rate in Prince George's metro station area cannot be neglected, the design approach follows the following principles:

- The buildings are closely connected to the open street
- Only a small number of families (three to six) share the interior circulation areas and grounds
- Grounds can be designated for one family but are usually shared by all the families in the building.
- Private space exists only within the apartment units
- The entrances are separated



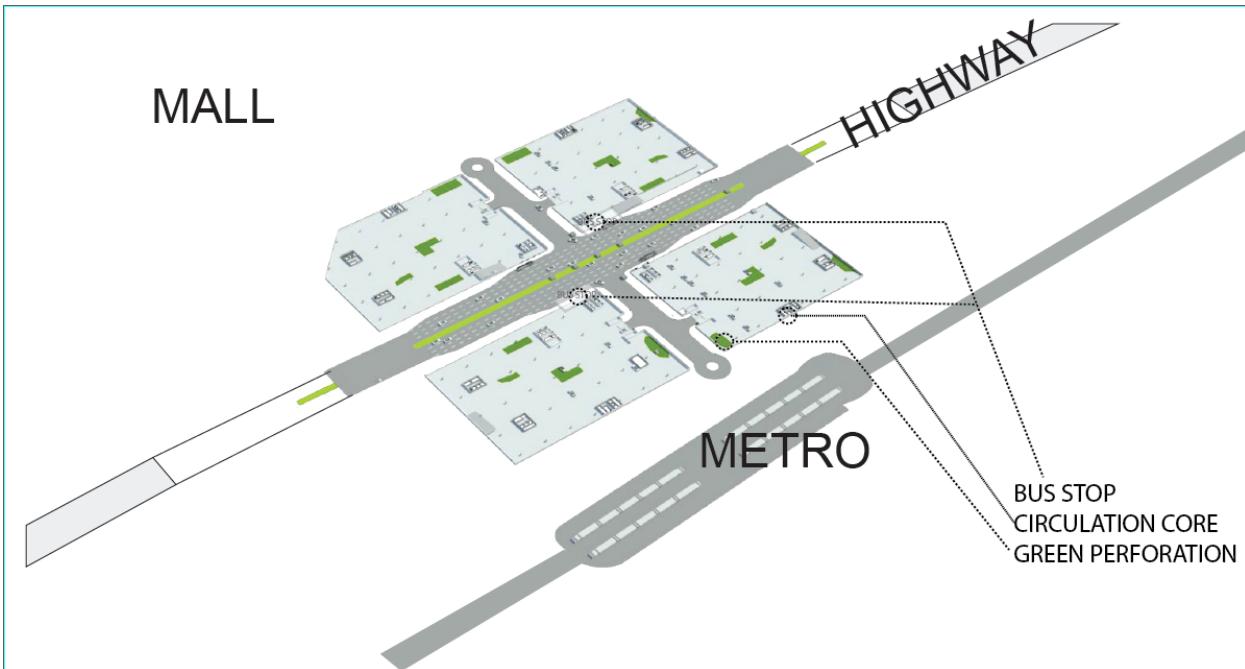


Figure 29 -2 level

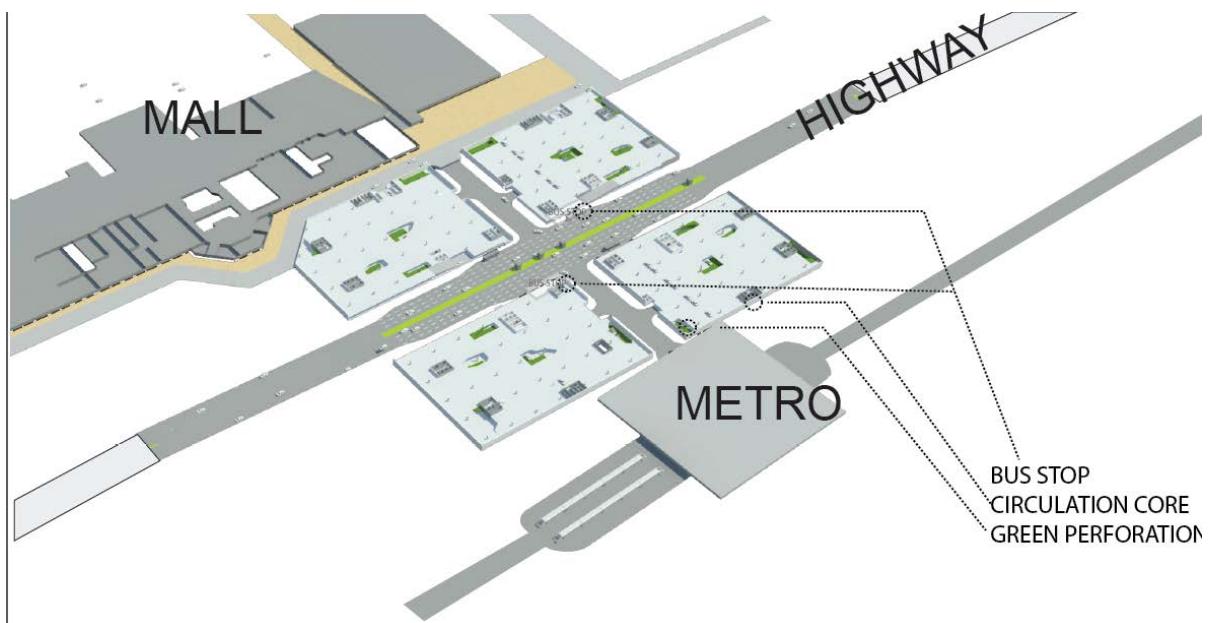


Figure 29 -1 level



Figure 29 The ground level

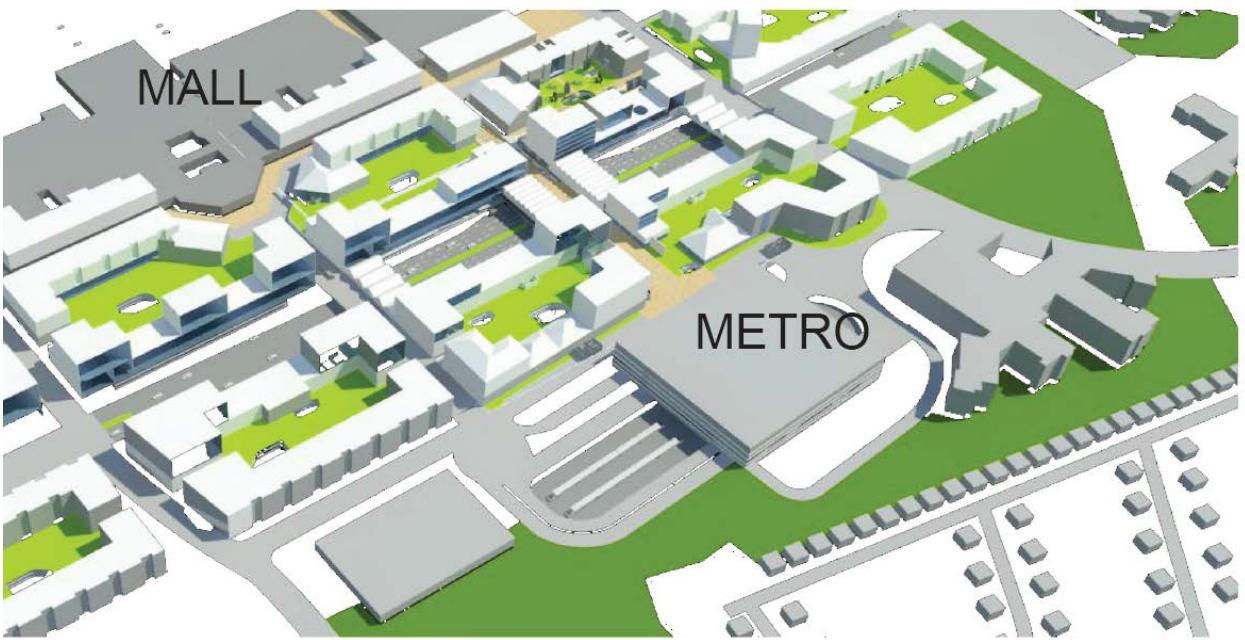
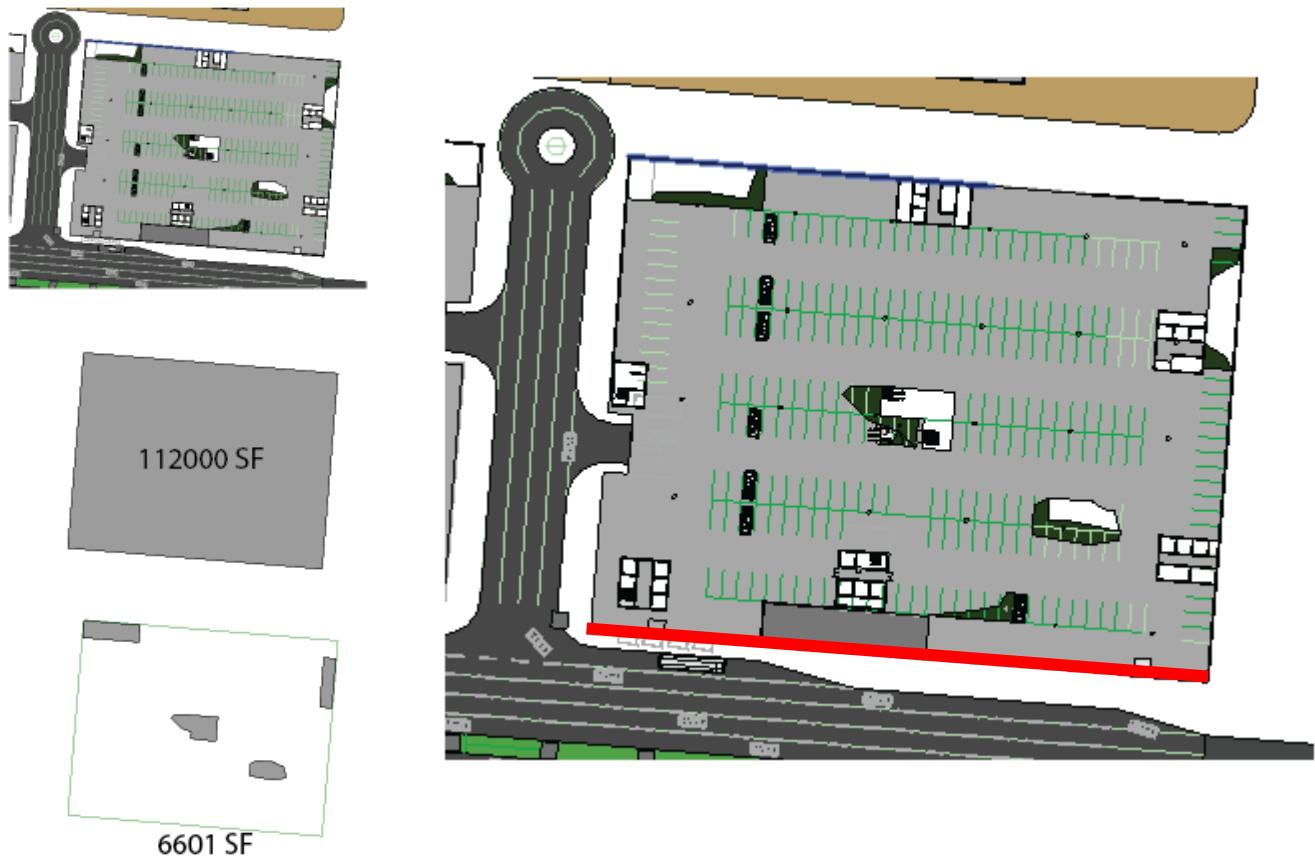


Figure 29 -1 level



$$6601/112000=5.8\% + 25\% = 30.8\% \text{ Nature ventilation}$$

**Figure 29** Nature ventilation caculation

The green perforation provides at least 6% of the nature ventilation plus the totally open-up side provides 25% of the nature ventilation, the total is at least 30% which reaches the regulation for city ramps and it saves the money to use mechanical equipment to ventilate



Figure 29 Looking to the West(East-West Highway) existing condition



Figure 29 Looking to the West(East-West Highway) proposal

This depressed highway is not oppressive like a tunnel, it enjoys plenty of daylight , vegetation and overlooking buildings

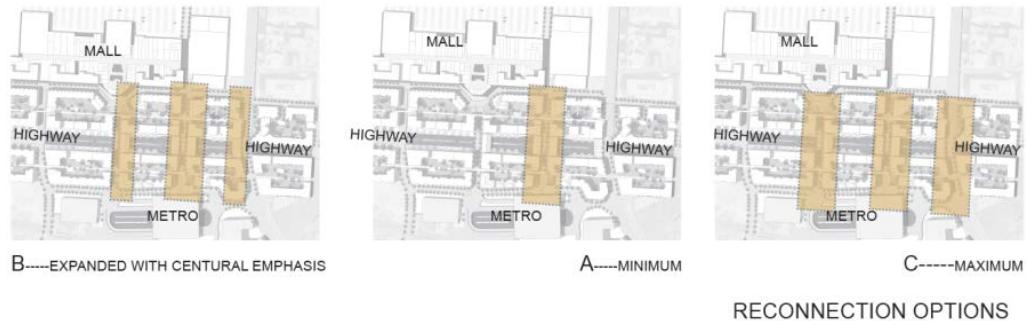
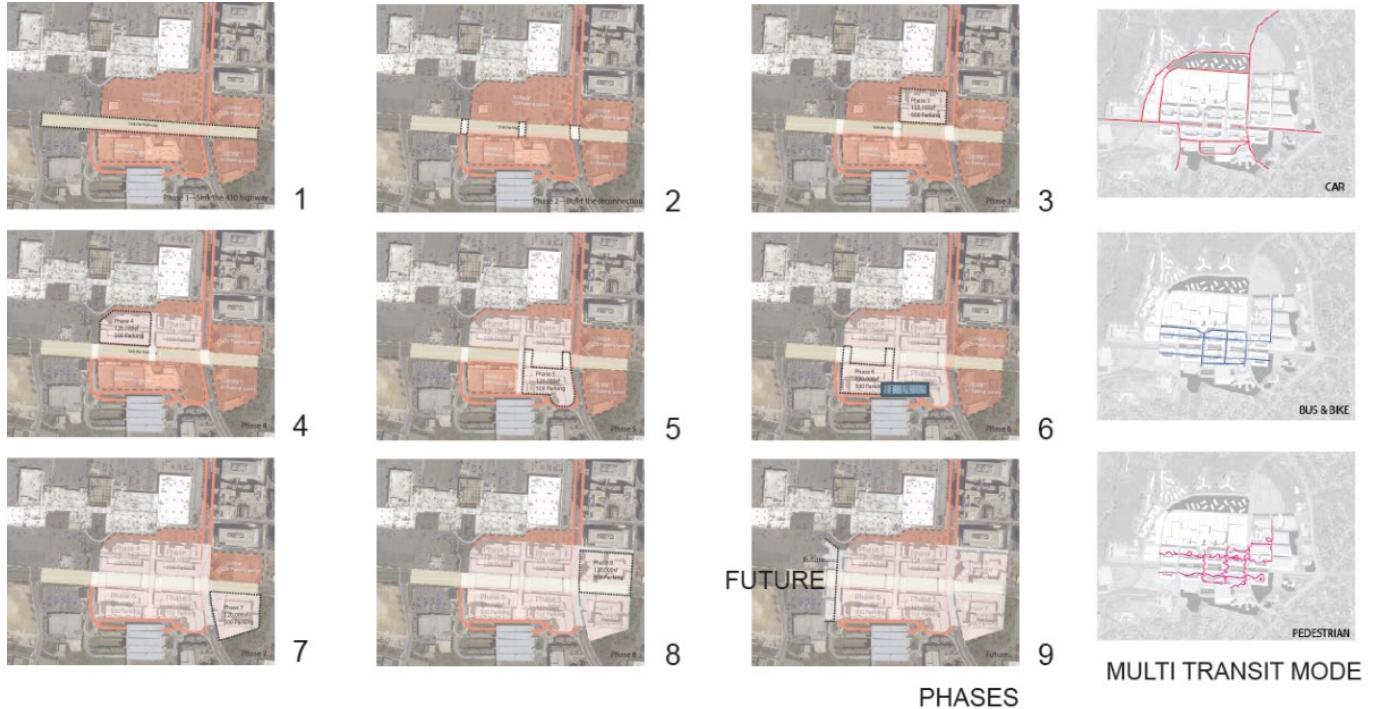
## Chapter 18 PHASING AND OPTIONS



FULLMATSER PLAN

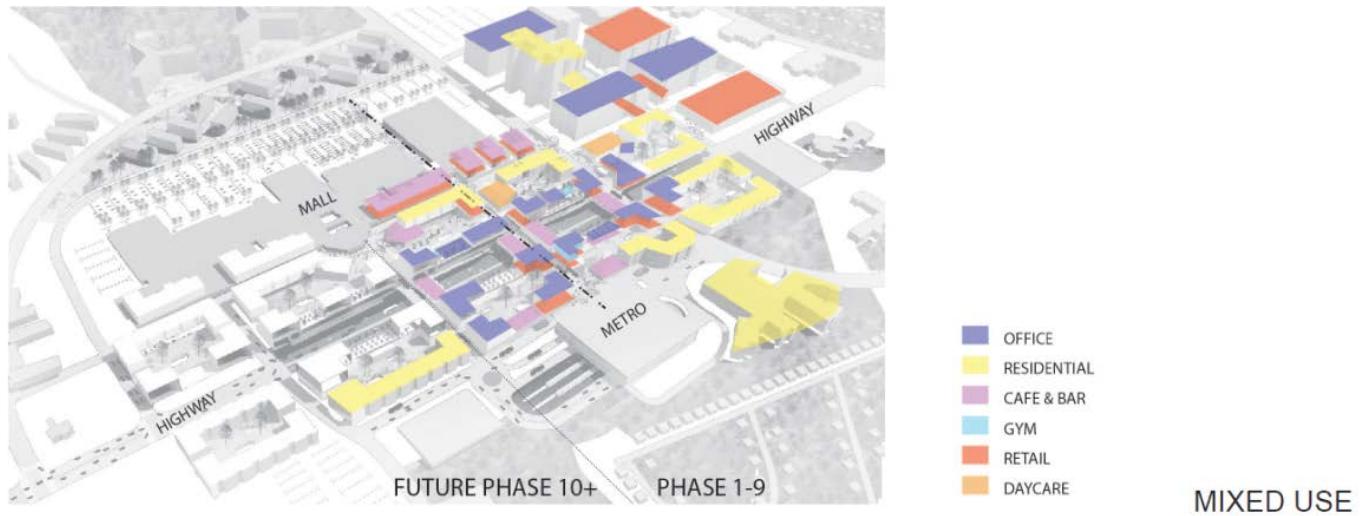
Urban scale ideas have to be thought of incrementally and with flexible alternatives

Dividing the new development into different phases is very necessary, after the first two phases of infrastructure transformation, each new phase of development will have 120,000 sf footprint development with 500 parking spaces serving it underneath, the different phases could be skipped or in different sequence.



The new development of different part of the site could be flexible too, the three new connections could be developed separately and with different characters, it could be replicated if the development reaches the expectation.

This new development sets up the stage for different transit modes, it gives freedom to pedestrians, private vehicles, buses and bikes.



"The public space---the sidewalk and street peace---of cities is not kept primarily by the police, necessary as police are. It is kept primarily by an intricate, almost unconscious, network of voluntary controls and standards among people themselves, and enforced by the people themselves." The higher density and mixed use development encourage new types of activities in this area, and the courtyard types of planning configuration helps enforces the nature supervision by people themselves.

The mixed use development makes it easier to use public transport, walk, or bike, helping to efficiently connect the city's neighborhoods through sustainable transport. There is an expectation for the decrease of car use and an energy-saving neighborhood prototype. In the existing context, the residential suburbs are segregated from the development center, where jobs and opportunities are concentrated. The new mixed use development works as a transitional zone and connection bridge between the suburb residential and the development center.

## **Chapter 19 PROGRAM PROPOSAL**

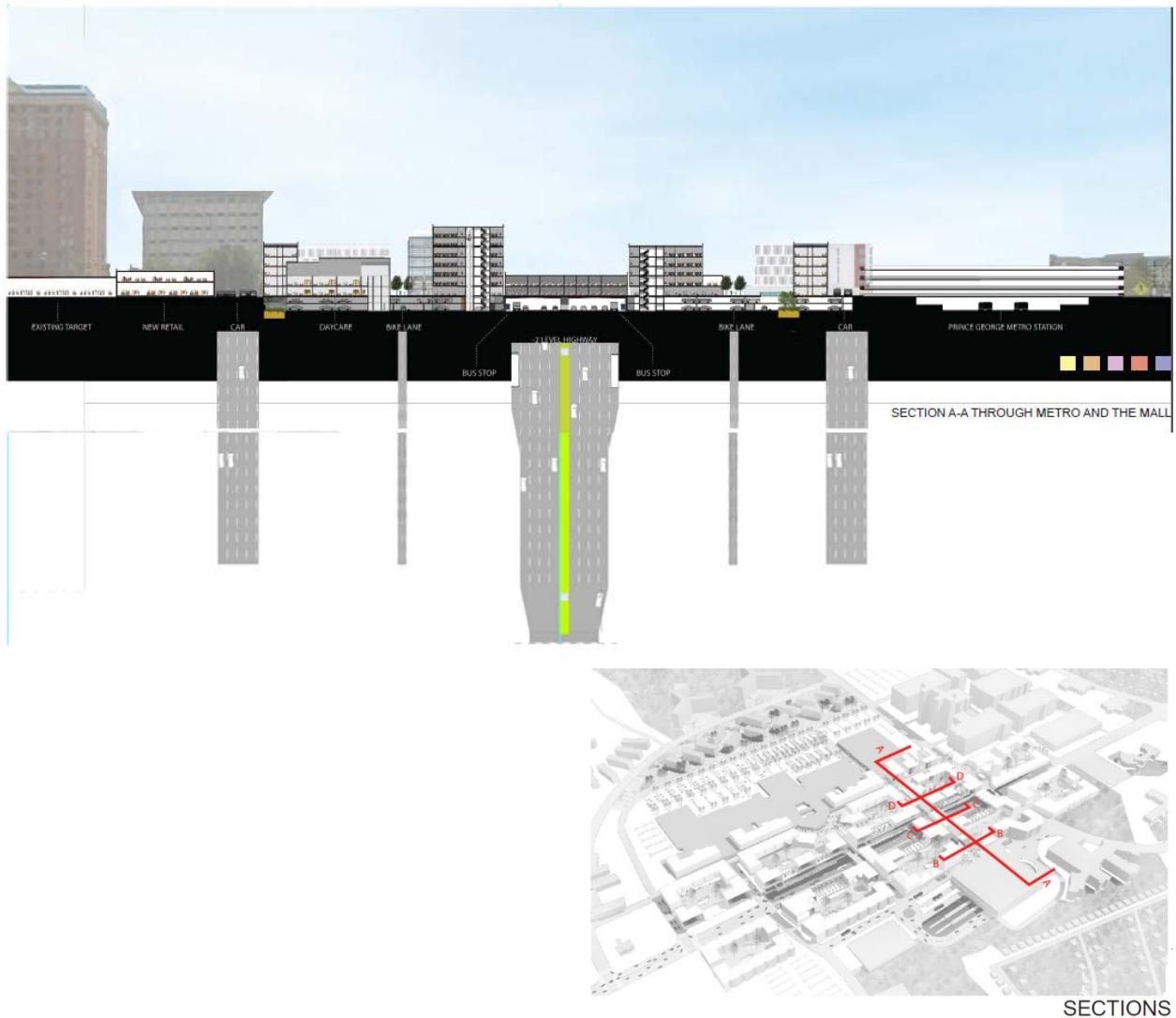
- 1 The private developer needs to build its own road and sidewalks
- 2 PG county is very poor with weak market and poor reputation public school, there is not that much to attract developer in this area
- 3 The PG county has less attraction for family or single household to come here, in other words, it has less potential for higher density
- 4 The East-West Highway is a state highway, there is not much to do with the intervention to pedestrianize it and it's difficult to add safety bike lanes
- 5 It's very expensive to build new street grids and do the maintenance

As the community aims to provide a place for professionals working in the area or commuting to Washington, it could place College Park on the map as a viable place to live for people other than college students.

- Live and work units
- Street front Retails
- Restaurant and cafe
- Multi-family housing/town house
- Leasing apartment and hotel
- Community center

- Multi-purpose pedestrian plaza/Play ground
- Green urban park for infiltration of runoff water from parking surface
- Art studio
- Art center
- Gym and outside fitness
- Parking garage

## Chapter 20 NEW CONNECTION EXPERIENCE



**Figure 29** Section through the mall and the metro

Connected communities improve health, environment, and economies

Mixed-use development works against sprawling and segregated to create inclusive, connected communities. In mixed-use areas, you can find housing, restaurants, services, schools, cultural facilities, parks, and more. This connectivity

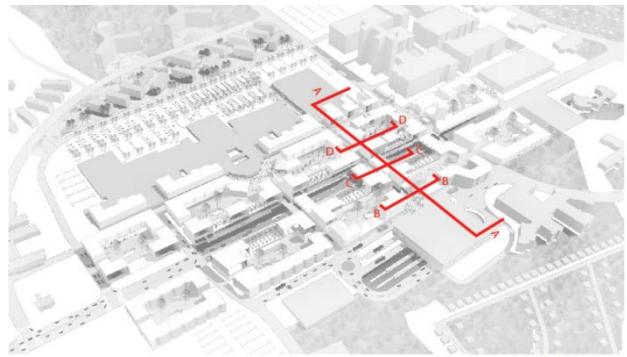
reduces the need for private vehicles, thus increasing the viability of public transport, walking, and bicycling.

The section from the mall to the metro station shows by doing this intervention, the primary pedestrian activities happen at the grade level, with bus stops, bike lanes, Metro, all kinds of transit modes supporting the development. The high density and mixed use connection bring vitality to the whole site. By reducing the need for vehicle travel, mixed-use development also brings shared community space. Plazas, parks, and sidewalks foster interaction among community members.

Finally, mixed-use, public transit-friendly neighborhoods benefit local economies. They save individuals money on transportation by reducing the length and number of everyday trips and eliminating the need for car ownership. Mixed-use development also supports local businesses by increasing foot traffic.



SECTION B-B OUTSIDE THE METRC



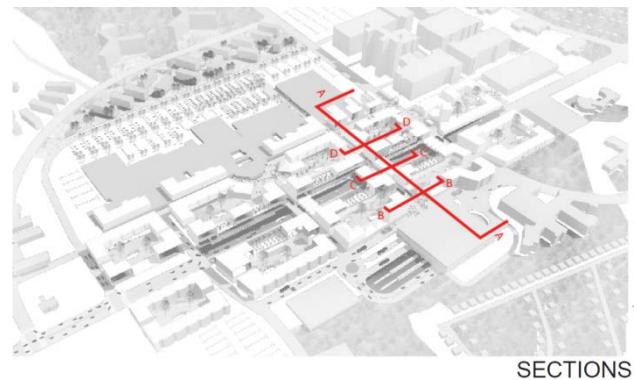
SECTIONS

**Figure 29** stepping outside the metro station

The pedestrian plaza outside the Metro station has all kinds of retails, cafes, gym and office building, compared to the dark, tunnel like egress of the existing condition. The new vision gives the site opportunity to draw more attention



SECTION C-C FLATTENED HIGHWA'



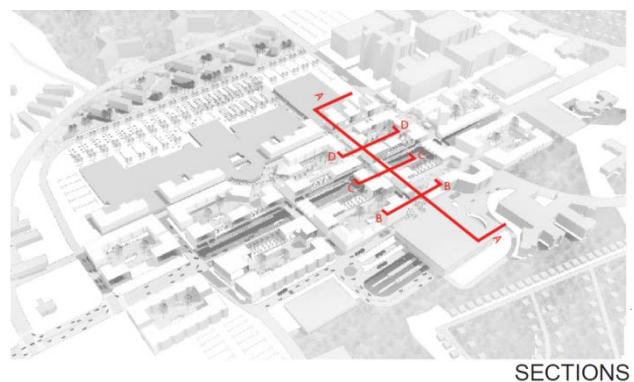
SECTIONS

**Figure 29** the new connection and depressing highway

The new bridge with pubs and bars at its sides bring vitality to the place, it also shelters the bus stop underneath, the bridge becomes a place for move and stay.



SECTION D-D COURTYARD & DAYCARE



**Figure 29** the courtyard

The more private courtyard with daycare center and residential building with playground can help the parents go to work and shop without worrying about their kids.

## Chapter 21 THE SCALE OF ARCHITECTURE

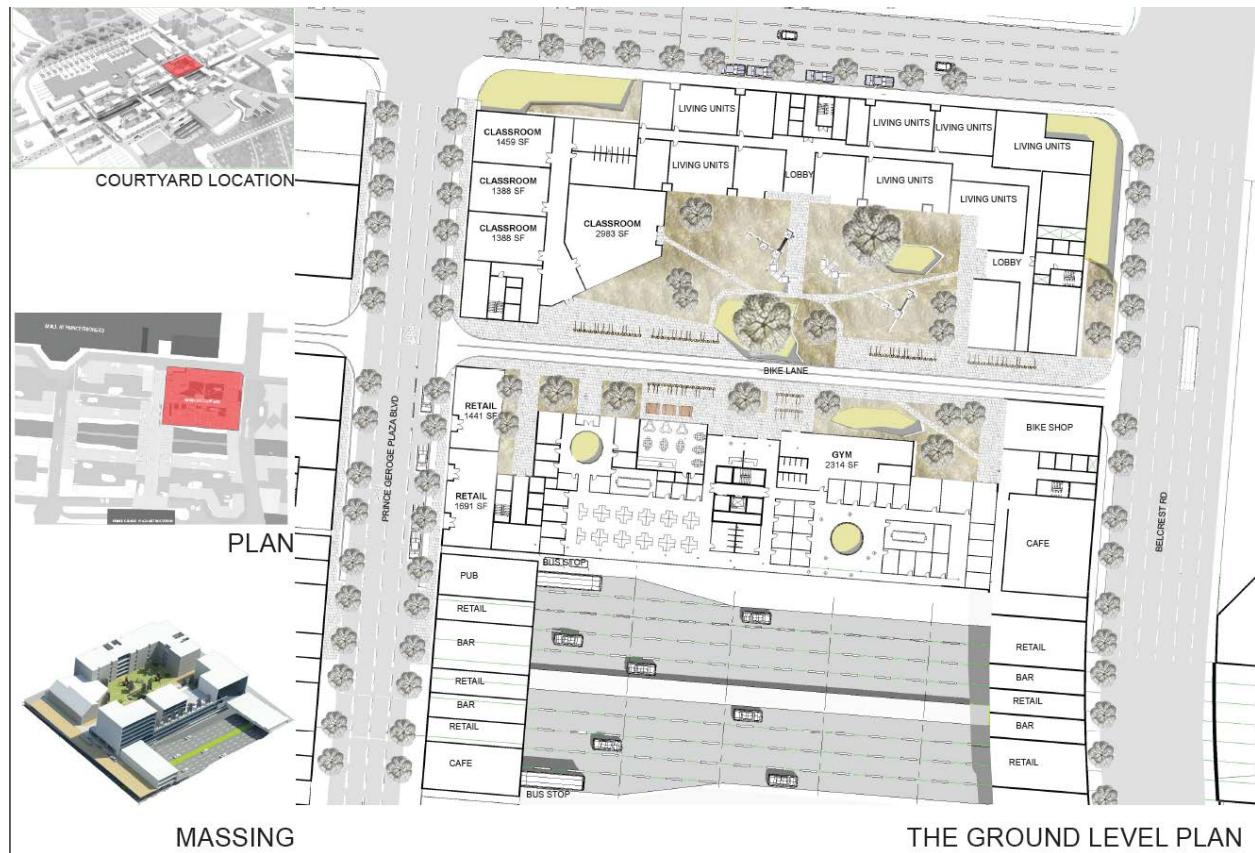


Figure 29 Building Plan

The big idea of the Architecture is using the courtyard prototype to serve the people both inside and outside, with bike lanes and bike storage inside the courtyard to encourage people not use cars. And the cone shape penetration helps diffusing the daylight complies with the big idea of introducing nature sunlight and ventilation. The corridor inside the office building helps the visual contact with both the courtyard and the highway underneath the grade level.

As Jane Jacobs write in her book, “the ubiquitous principle is the need of cities for a most intricate and close-grained diversity of uses that give each other constant mutual support, both economically and socially. The components of this diversity can differ enormously, but they must supplement each other in certain concrete way.”

The activities in the mixed use courtyard support each other, bring vitality to the whole community.



**Figure 29 Building section perspective**

One of the unusual urban design idea is perforating the below grade parking ramps with landscape, recreation and children play areas.

My ‘ground’ is two levels above the highway, but unlike city parking ramps, my perforation provide ventilation, light, air and play activities where you least expected and most appreciated.

These perforations provide all the required natural ventilation and impact only 5%-8% of the parking.

## **Bibliography**

THE HIDDEN POTENTIAL OF SUSTAINABLE NEIGHBORHOODS

by Harrison Fraker

Courtyards: Aesthetic, Social, and Thermal Delight,

by John S. Reynolds

Sustainable Urbanism: Urban Design With Nature,

by Douglas Farr

Walkable City: How Downtown Can Save America, One Step at a Time

Nov 12, 2013 by Jeff Speck

The death and life of great American cities

Dec 1, 1992 by Jane Jacobs

Place Making: Developing Town Centers, Main Streets, and Urban Villages

Jan 1, 2002 by Charles C. Bohl and Gary Cusumano

Transit Oriented Development: Making it Happen

by Carey Curtis, John L. Renne, Luca Bertolini

The New Transit Town: Best Practices In Transit-Oriented Development

By Hank Dittmar Gloria Ohland

Design for Community August 9, 2001

by Derek Powazek (Author)

People-oriented Cities: Mixed-use development creates social and economic benefits

By Luis Zamorano and Erika Kulpa July 23, 2014