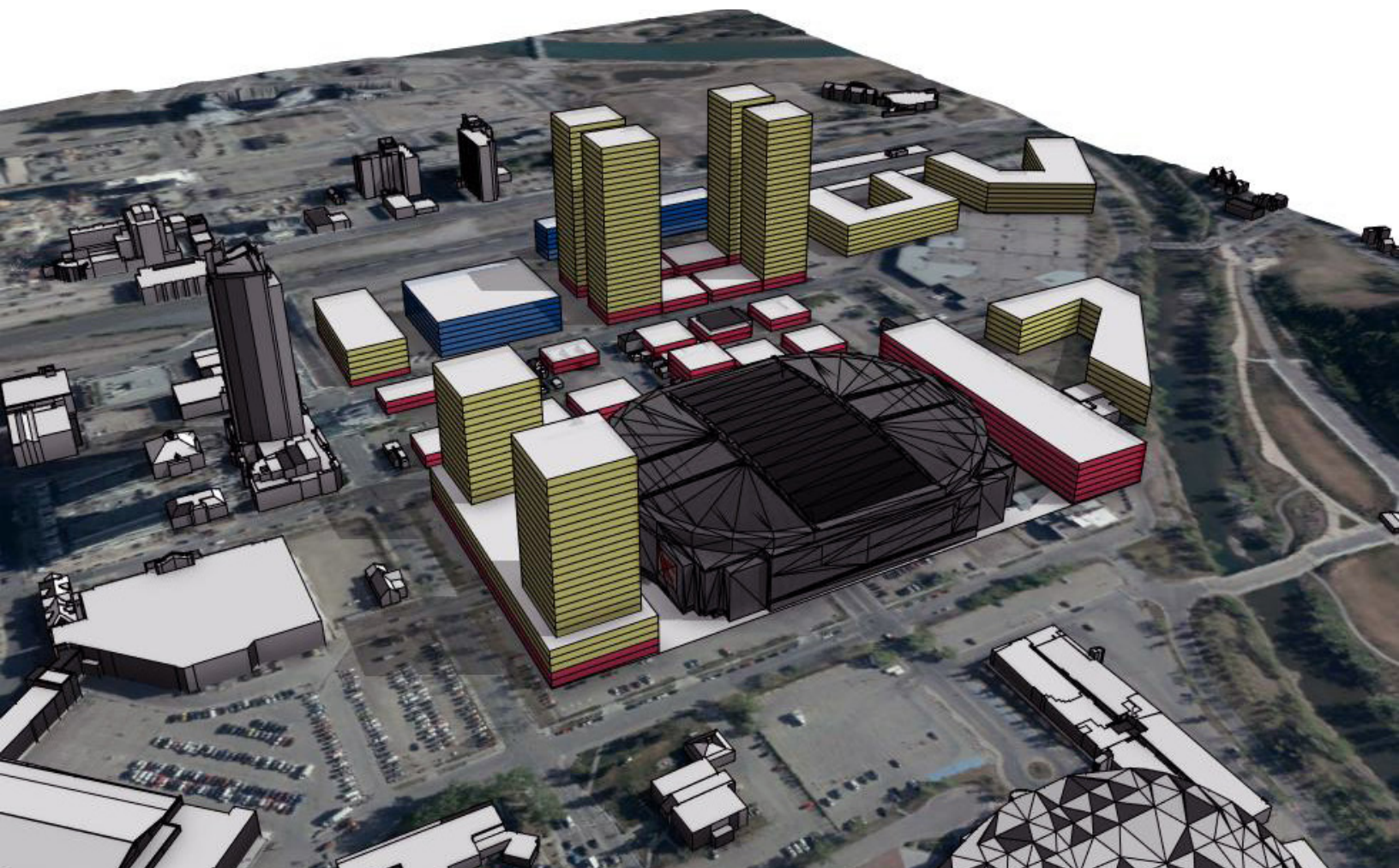


CIP Calgary 2017

Urban Design Charette

CanU and The City of Calgary Urban Design Charette
“Planning and Design for Resilience, Sustainability and Public Health”



Workshop Summary

The “Resilience by Design” charrette was organized by the Council for Canadian Urbanism (CanU) and The City of Calgary. It demonstrated practical design approaches using a demonstration site in Calgary in a participatory format. This session also demonstrated the design-based approach to planning for climate change adaptation and mitigation; for sustainable and healthy development; for authentic place making; and for thriving communities.

As a pilot during the charrette, ESRI CityEngine, a state of art 3D visualization technology, was used to transform the sketched design concepts into 3D models for buildings and their massing. It then generated analytical data which is crucial for sound decision making.

The session leaders are well known national and local leaders in the urban design field, experienced with this type of session, planning and design techniquetown are located a short distance away across the Bow River to the south.

Charette Participants

| | |
|---|-------------------------------|
| Acadian Peninsula Regional Service Commission | QuantumPlace Developments Ltd |
| Alberta Environment and Parks | Region of Waterloo |
| B&A Planning Group | Smoky Lake County |
| Carswell Planning | The City of Calgary |
| City of Edmonton | The City of Red Deer |
| City of Fort Saskatchewan | Town of Bracebridge |
| City of Lloydminster | Town of Cochrane |
| City of Spruce Grove | Town of Morinville |
| City of Victoria | Town of Okotoks |
| CivicWorks Planning + Design | Town of Paradise, NL |
| Fanshawe College | Town of Princeton |
| Hillhurst Sunnyside Community Association | Town of Sidney |
| Leduc County | Town of Stony Plain |
| Mandaworks | Town of Taber |
| Niagara Region | University of Calgary |
| OpenGate Properties | Wallace Consulting |
| Parkland Community Planning Services | Wheatland County |

Charette Subject Area

Participants engaged in an exercise of developing a masterplan-concept for the charette site. The daylong charette started with a site visit lead by the City's urban designers to allow participants to familiarize themselves with the site's challenges and opportunities.

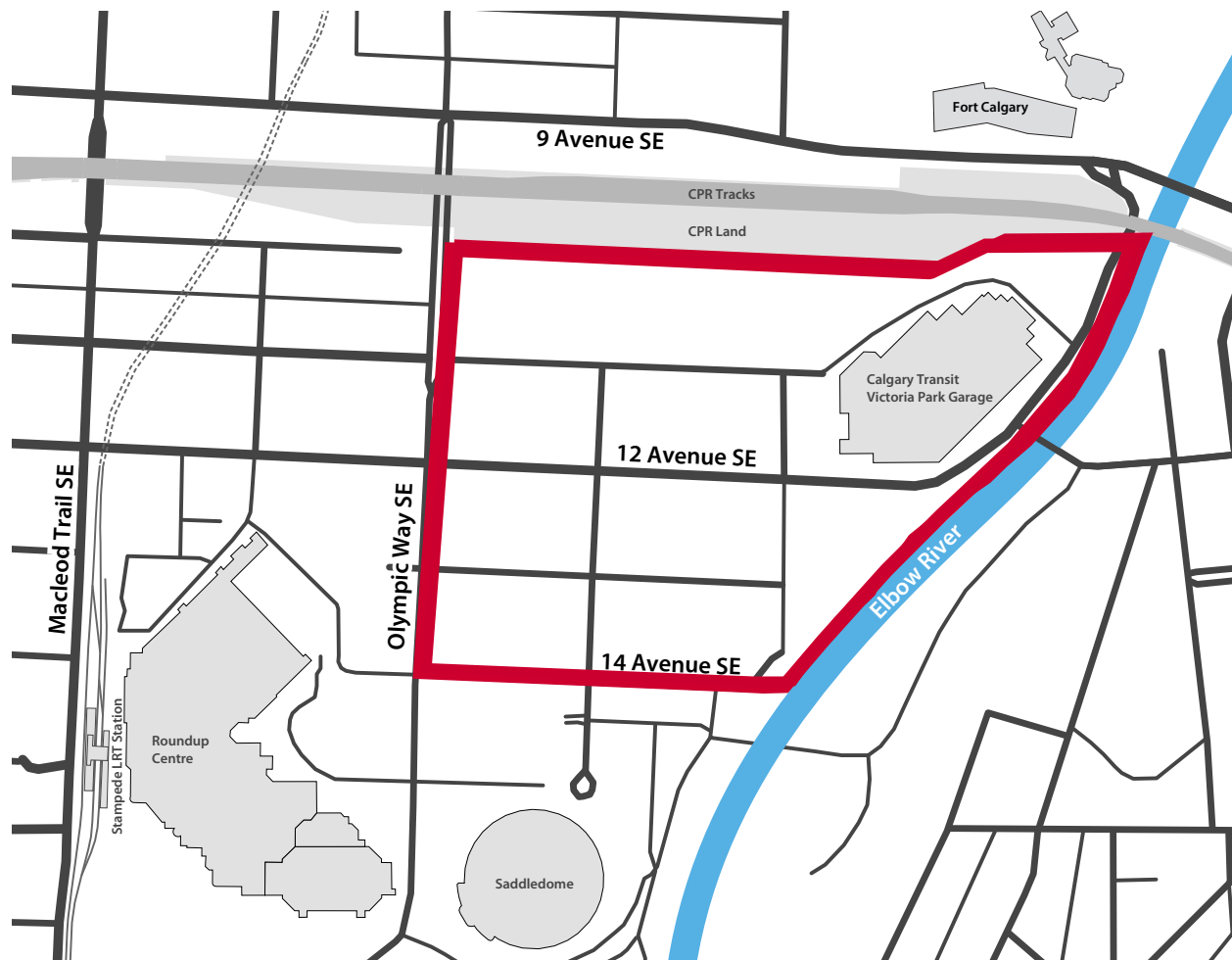


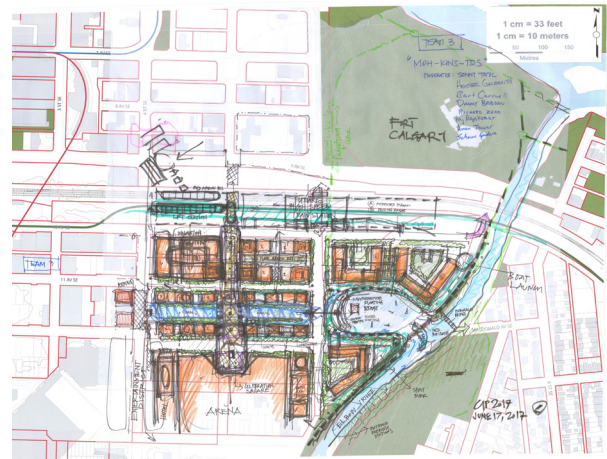
Table Concepts

Participants grouped into four round-tables with 9 participants each and were asked to develop ideas for building blocks, street grids, green spaces and uses based on a short SWOT analysis. Concepts and ideas were sketched to paper by a draftsperson at each table resulting in a masterplan sketch.

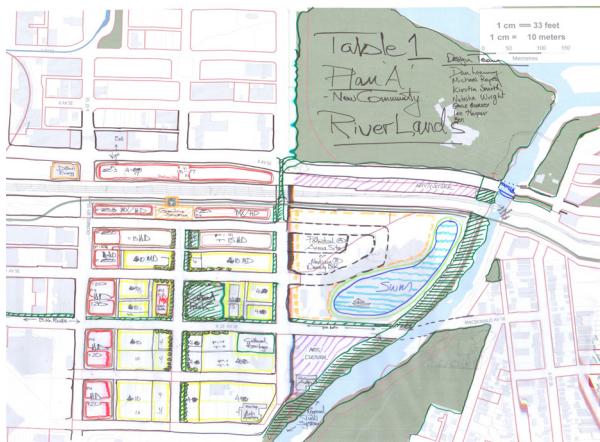
Each table used an assigned colour code and built-form templates (townhomes, offices, residential, mid-rise, high-rise, courtyard buildings etc.) to generate their sketch. Building edges, street dimensions and green spaces were marked by geo-data points which then were scanned in and translated during the drafting phase into the 3D visualization program.



Concept 1



Concept 2



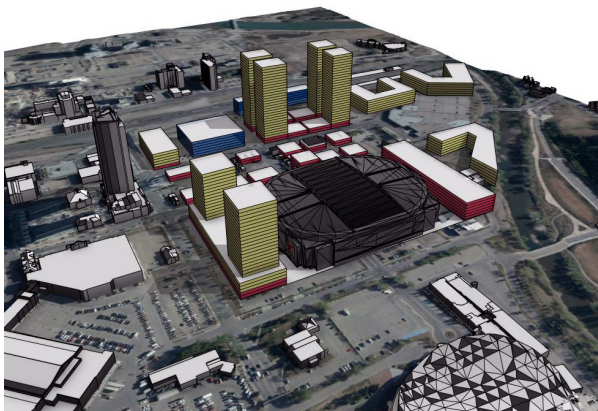
Concept 3



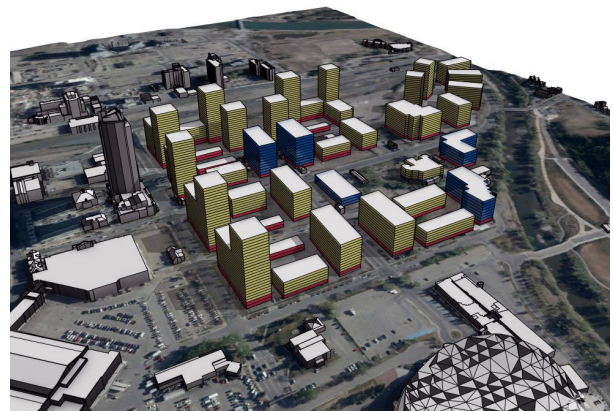
Concept 4

CityEngine 3D Transformation

The sketches developed in the table concept stage were then scanned and translated with ESRI CityEngine. The software generated 3D visualizations of each of the concepts.



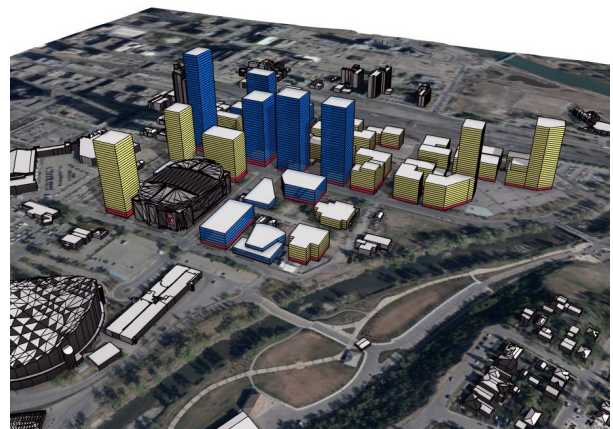
Concept 1



Concept 2



Concept 3



Concept 4

Charette Report Evaluation

Based on City of Calgary parameters, all 4 concepts were then evaluated through ESRI CityEngine. A comparison table shows a comprehensive report on each of the concepts based on the various parameters that form the criteria for deciding on which concepts are more appropriate. The analysis compares possible tax revenue, employment, residential units, office space etc. of each site (based on the density and other factors of the design) which provides valuable information for final decision making.

| Table 1 (Concept 1) | |
|--|---------------|
| Report | Sum |
| 1 Ret Employee Count | 1,772 |
| 1 Ret Estimated Assessment Value | 342,292,282 |
| 1 Ret Market Net Operating Income (annual) | 47,673,020 |
| 1 Ret Municipal Tax Revenue (\$/yr) | 3,662,527 |
| 1 Ret Net Floor Area (SqF) | 953,460 |
| 1 Ret Parking Stalls | 3,546 |
| 2 Off Employee Count | 1,868 |
| 2 Off Estimated Assessment Value | 198,207,165 |
| 2 Off Market Net Operating Income (annual) | 12,125,615 |
| 2 Off Municipal Tax Revenue (\$/yr) | 2,120,817 |
| 2 Off Net Floor Area (SqF) | 466,370 |
| 2 Off Parking Stalls | 864 |
| 3 Res Estimated Assessment Value | 1,214,387,026 |
| 3 Res Market Net Operating Income (annual) | 4,553,951 |
| 3 Res Municipal Tax Revenue (\$/yr) | 4,250,355 |
| 3 Res Net Floor Area (SqF) | 3,035,968 |
| 3 Res Parking Stalls | 3,522 |
| 3 Res Population | 4,797 |
| 5 Total Assessed Value | 1,754,886,473 |
| 6 Tot Annual Market NOI \$ | 64,352,586 |
| 7 Municipal Tax Revenue (\$/yr) | 10,033,699 |
| 8 Total Project Value \$ | 1,036,058,167 |
| 9 Bldg Const Value \$ | 980,275,507 |
| 9 Total Parking Stalls Required | 7,932 |
| GFA (SqF) | 5,242,115 |
| GFA (SqM) | 487,185 |
| Net Floor Area (SqF) | 4,455,798 |
| Parcel Area (Acres) | 16 |
| Parcel Area (SqM) | 64,036 |
| Pedestal Floorplate Area | 64,033 |
| Pedestal Height from Ground | 796 |
| T1 Floorplate Area | 1,600 |
| T1 Height from Ground | 80 |
| T2 Floorplate Area | 1,600 |
| T2 Height from Ground | 100 |
| Total Units Allowed | 2,822 |

| Table 2 (Concept 2) | |
|--|---------------|
| Report | Sum |
| 1 Ret Employee Count | 1,242 |
| 1 Ret Estimated Assessment Value | 239,968,827 |
| 1 Ret Market Net Operating Income (annual) | 33,421,842 |
| 1 Ret Municipal Tax Revenue (\$/yr) | 2,567,666 |
| 1 Ret Net Floor Area (SqF) | 668,437 |
| 1 Ret Parking Stalls | 2,483 |
| 2 Off Employee Count | 2,505 |
| 2 Off Estimated Assessment Value | 265,802,460 |
| 2 Off Market Net Operating Income (annual) | 16,260,856 |
| 2 Off Municipal Tax Revenue (\$/yr) | 2,844,086 |
| 2 Off Net Floor Area (SqF) | 625,418 |
| 2 Off Parking Stalls | 1,166 |
| 3 Res Estimated Assessment Value | 1,791,229,617 |
| 3 Res Market Net Operating Income (annual) | 6,717,111 |
| 3 Res Municipal Tax Revenue (\$/yr) | 6,269,304 |
| 3 Res Net Floor Area (SqF) | 4,478,074 |
| 3 Res Parking Stalls | 5,216 |
| 3 Res Population | 7,075 |
| 5 Total Assessed Value | 2,297,000,904 |
| 6 Tot Annual Market NOI \$ | 56,399,810 |
| 7 Municipal Tax Revenue (\$/yr) | 11,681,056 |
| 8 Total Project Value \$ | 912,861,469 |
| 9 Bldg Const Value \$ | 1,269,824,256 |
| 9 Total Parking Stalls Required | 8,865 |
| GFA (SqF) | 6,790,504 |
| GFA (SqM) | 631,088 |
| Net Floor Area (SqF) | 5,771,928 |
| Parcel Area (Acres) | 14 |
| Parcel Area (SqM) | 56,743 |
| Pedestal Floorplate Area | 56,738 |
| Pedestal Height from Ground | 1,371 |
| T1 Floorplate Area | 3,304 |
| T1 Height from Ground | 326 |
| T2 Floorplate Area | 625 |
| T2 Height from Ground | 82 |
| Total Units Allowed | 4,162 |

| Table 3 (Concept 3) | |
|--|---------------|
| Report | Sum |
| 1 Ret Employee Count | 1,876 |
| 1 Ret Estimated Assessment Value | 362,331,620 |
| 1 Ret Market Net Operating Income (annual) | 50,464,014 |
| 1 Ret Municipal Tax Revenue (\$/yr) | 3,876,948 |
| 1 Ret Net Floor Area (SqF) | 1,009,280 |
| 1 Ret Parking Stalls | 3,751 |
| 2 Off Employee Count | 2,478 |
| 2 Off Estimated Assessment Value | 262,894,973 |
| 2 Off Market Net Operating Income (annual) | 16,082,987 |
| 2 Off Municipal Tax Revenue (\$/yr) | 2,812,976 |
| 2 Off Net Floor Area (SqF) | 618,576 |
| 2 Off Parking Stalls | 1,151 |
| 3 Res Estimated Assessment Value | 1,855,064,781 |
| 3 Res Market Net Operating Income (annual) | 6,956,493 |
| 3 Res Municipal Tax Revenue (\$/yr) | 6,492,727 |
| 3 Res Net Floor Area (SqF) | 4,637,662 |
| 3 Res Parking Stalls | 5,421 |
| 3 Res Population | 7,327 |
| 5 Total Assessed Value | 2,480,291,374 |
| 6 Tot Annual Market NOI \$ | 73,503,493 |
| 7 Municipal Tax Revenue (\$/yr) | 13,182,651 |
| 8 Total Project Value \$ | 1,187,359,412 |
| 9 Bldg Const Value \$ | 1,378,414,100 |
| 9 Total Parking Stalls Required | 10,323 |
| GFA (SqF) | 7,371,198 |
| GFA (SqM) | 685,056 |
| Net Floor Area (SqF) | 6,265,519 |
| Parcel Area (Acres) | 24 |
| Parcel Area (SqM) | 98,514 |
| Pedestal Floorplate Area | 85,020 |
| Pedestal Height from Ground | 625 |
| T1 Floorplate Area | 13,615 |
| T1 Height from Ground | 738 |
| T2 Floorplate Area | 3,730 |
| T2 Height from Ground | 393 |
| T3 Floorplate Area | 750 |
| T3 Height from Ground | 62 |
| Total Units Allowed | 4,310 |

| Table 4 (Concept 4) | |
|--|---------------|
| Report | Sum |
| 1 Ret Employee Count | 1,312 |
| 1 Ret Estimated Assessment Value | 253,459,873 |
| 1 Ret Market Net Operating Income (annual) | 35,300,818 |
| 1 Ret Municipal Tax Revenue (\$/yr) | 2,712,021 |
| 1 Ret Net Floor Area (SqF) | 706,016 |
| 1 Ret Parking Stalls | 2,622 |
| 2 Off Employee Count | 9,960 |
| 2 Off Estimated Assessment Value | 1,056,700,681 |
| 2 Off Market Net Operating Income (annual) | 64,645,218 |
| 2 Off Municipal Tax Revenue (\$/yr) | 11,306,697 |
| 2 Off Net Floor Area (SqF) | 2,486,355 |
| 2 Off Parking Stalls | 4,633 |
| 3 Res Estimated Assessment Value | 1,596,318,219 |
| 3 Res Market Net Operating Income (annual) | 5,986,193 |
| 3 Res Municipal Tax Revenue (\$/yr) | 5,587,114 |
| 3 Res Net Floor Area (SqF) | 3,990,796 |
| 3 Res Parking Stalls | 4,621 |
| 3 Res Population | 6,305 |
| 5 Total Assessed Value | 2,906,478,773 |
| 6 Tot Annual Market NOI \$ | 105,932,229 |
| 7 Municipal Tax Revenue (\$/yr) | 19,605,832 |
| 8 Total Project Value \$ | 1,673,377,634 |
| 9 Bldg Const Value \$ | 1,580,296,619 |
| 9 Total Parking Stalls Required | 11,876 |
| GFA (SqF) | 8,450,784 |
| GFA (SqM) | 785,389 |
| Net Floor Area (SqF) | 7,183,166 |
| Parcel Area (Acres) | 17 |
| Parcel Area (SqM) | 69,142 |
| Pedestal Floorplate Area | 69,136 |
| Pedestal Height from Ground | 1,161 |
| T1 Floorplate Area | 13,276 |
| T1 Height from Ground | 814 |
| T2 Floorplate Area | 4,840 |
| T2 Height from Ground | 408 |
| T3 Floorplate Area | 1,250 |
| T3 Height from Ground | 40 |
| Total Units Allowed | 3,709 |

Charette impressions

With the assistance of the visualization, participants not only could see in almost real time the 3D impact of their masterplans but also the impacts on population, employment, traffic, tax revenue and other parameters.

This impact analyses allowed participants to form a more informed evaluation of their designs and to compare the pros and cons of the various concepts beyond the visual appearance.

Participants agreed that the workshop was of great value after learning the application of the 3D ESRI CityEngine software for the purpose of an urban design charette.