



A range of intensification strategies to maintain the neighbourhood character while doubling the population

Medium Density Infill

Development pattern workshop

Description

The Medium Density Infill development pattern doubles the population and jobs in existing low density residential neighbourhoods while maintaining their character. The Medium Density Infill development pattern is different than the Medium Density Residential pattern, as it applies to low density residential neighbourhoods and maintains their detached single family residential character. This pattern supports the 11 sustainability principles, particularly:

- Principle 1: *Create a range of housing opportunities and choices*
- Principle 3: *Foster distinctive, attractive communities with a strong sense of place;*
- Principle 4: *Provide a variety of transportation options;*
- Principle 8: *Support compact development;* and,
- Principle 7: *Strategically direct and manage redevelopment opportunities within existing areas.*

The target areas for this type of intensification are those where there is a need for growth, such as close to City Centre.

Challenges

The workshop addressed two challenges:

- To accommodate 65 people/ha and 2 jobs/ha, which translates to a total of 4,800 people and 160 jobs in a total area of 73 hectares. This means adding an extra 2,400 people and 80 jobs in an existing low density residential neighbourhood. While not enough to support high capacity transit, the intensified neighbourhoods resulting from Medium Density Infill would enhance the viability of basic bus service with connections to the nearest CTrain station or mainline bus route.
- To broaden the range of housing options and to address the issue of affordable housing.

Summary & conclusions

The Medium Density Infill workshop illustrates that intensification can occur while maintaining the single family character of a neighbourhood. Through a broad range of intensification strategies, the Medium Density Infill pattern doubles its population and jobs capacity and maintains 45% of the total residential area in a detached single family house character. This includes houses where intensification occurs in the back yard (e.g. garden suites, suites above garages) and an assumed percentage of houses that would not densify. The intensified neighbourhood diversifies housing choice, contributes to housing affordability, and increases the amount of commercial and civic uses, and open space.

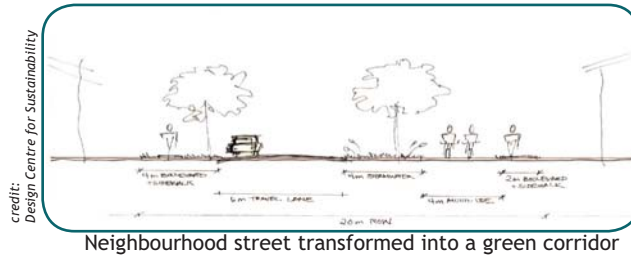
Above:
The Medium Density Infill development pattern intensifies existing low density residential neighbourhoods, while at the same time maintaining their character. The workshop team proposed intensification strategies that maintain 45% of the total residential area as detached single family house character.

Medium Density Infill Design strategies

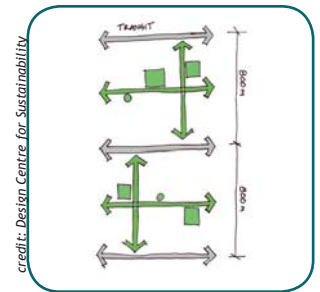
The workshop team addressed the challenge of intensifying land use to meet transit supportive density targets while maintaining the low density character of the neighbourhood. The workshop team developed intensification strategies designed for different conditions within the neighbourhood. Low-rise, mixed-use intensification occurs along the major roads on the edge of the study area. The team also identified strategic areas for conservation of single family character, where intensification could occur in the back yard (e.g. garden suites, suites above garages), or by duplexing. Row-houses and 3-4 storey multi-family mid-rises cluster around major open spaces. The design results in an increase in the quantity, connectivity, and ecological function of the open spaces in the community.

1 Grey and green quilt

- Create a **quilt of transit corridors and green corridors** that connects major open spaces with pedestrian and bike routes. The quilt ensures all residents are within a 5 minute walk (400m) of both a transit line and a green corridor.



Neighbourhood street transformed into a green corridor



Green and grey quilt

6 Ecologically functional, multi-use open spaces

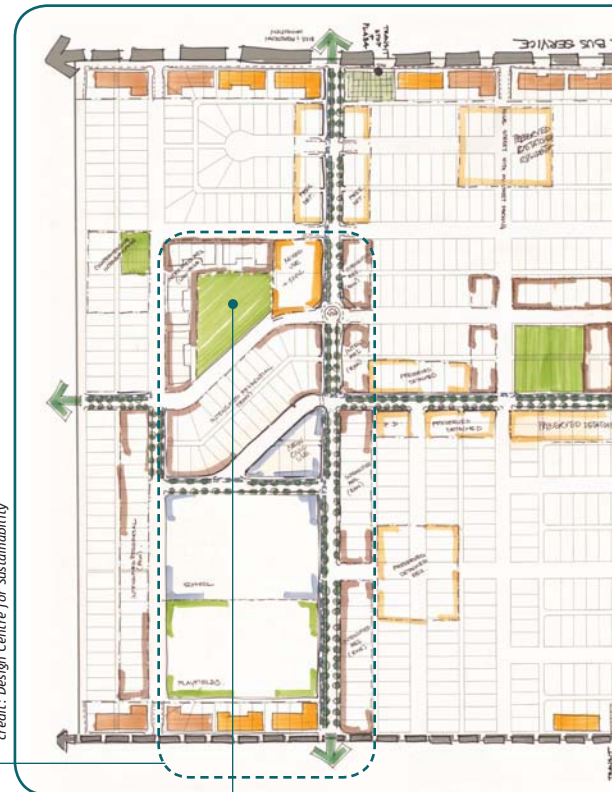
- Provide **pocket parks** that increase the diversity of open spaces and perform **ecological functions**.
- Use the **green corridors** as a component of the stormwater management strategy.
- Locate permeable **hard scape open spaces** at **transit stops** to encourage multi-use activities (e.g. cafes, playgrounds) and to reinforce the notion of layering open space, civic use, and transit.



Transit plaza



Detail of school and playfields area

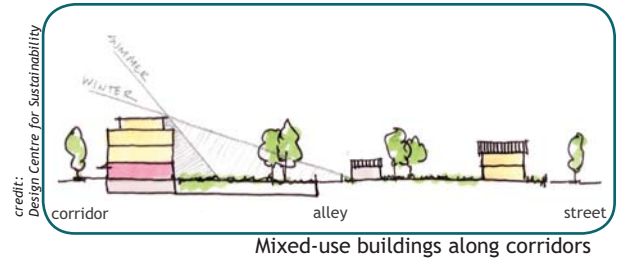


5 Medium density around

- Locate **medium density** mid-rises, 3-4 storey multi-family units around transit stops to provide open space to residents, and to provide m...

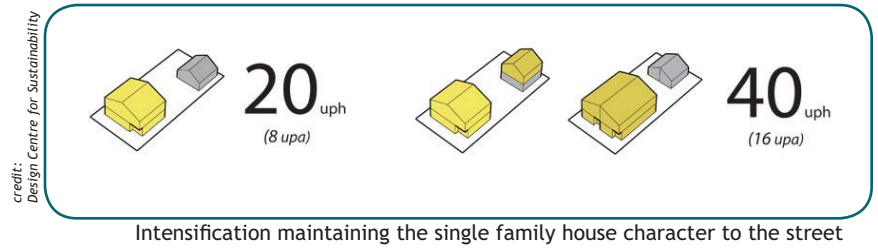
2 Mixed-use transit corridors

- Create retail opportunities along transit corridors.
- Encourage multi-storey, **mixed-use buildings** along transit corridors and design height and orientation to allow for sun penetration in adjacent yards.
- **Retrofit** existing one-storey retail buildings to maintain commercial activity and incorporate housing.



3 Neighbourhood character maintained

- Maintain the **single-family residential character** along **green corridors**, limiting intensification strategies to the back of lots.
- Identify strategic locations for **conservation areas**, where the front yard maintains single-family house character and intensification occurs in the back (e.g. garden suites, suites above garages).



4 A range of intensification strategies

- Create a **range of intensification strategies** from a piecemeal approach (i.e. parcel by parcel), to a whole-block comprehensive design including smaller open spaces (e.g. pocket parks, public or semi public).
- Provide opportunities for **incremental infill** within buildings (e.g. basement suites, duplexes, triplexes) and within **parcels** (e.g. garden suites, suites above garages) to gradually intensify the neighbourhood.



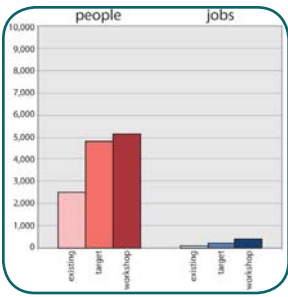
and major open spaces

buildings (e.g. row-houses and multi-family) around major parks to residents without private cars and more “eyes on the street”.

A range of intensification strategies: from a piecemeal approach to a whole-block comprehensive design

Medium Density Infill

Key questions & findings



Existing, target, and workshop population & jobs

How many people and jobs can a Medium Density Infill hold?

The Medium Density Infill pattern accommodates over 2,600 new people and 270 new jobs in the existing 73-hectare low density residential neighbourhood explored. This translates to a total population of 5,000 and 350 jobs, exceeding the population target by 5% and the employment target by 118%. Densities are 68 people/ha and 5 jobs/ha.

What is the appropriate land use mix for a Medium Density Infill?

The Medium Density Infill pattern maintains residential use as the primary land use in the neighbourhood. It has increased commercial use (from 1% to 4%) (Design strategy 2), and open space (from 6% to 8%) (Design strategy 6) over the existing land use mix. Within residential use, 45% of the total residential area is in detached single family character homes. This includes houses where intensification occurs in the back yard (e.g. garden suites, suites above garages) and an assumed percentage of houses that will not densify. New attached and low-rise multi family housing types diversify the housing stock to meet the different needs of all residents within the community (Design strategies 4 and 5). The land use mix diversity index for the resulting Medium Density Infill pattern is 0.76.

What is the physical appearance of a Medium Density Infill?

The Medium Density Infill pattern maintains the single family neighbourhood character through conservation areas along green corridors and in key locations throughout the site (Design strategy 3). Mixed-use intensification occurs along major streets adjacent to the site (Design strategy 2). Row houses and low-rises locate in areas close to the major open spaces (Design strategy 5). The workshop team identified opportunities for a range of intensification strategies (from parcel by parcel to whole-block comprehensive designs), as well as gradual incremental intensification through secondary suites to improve housing choice and affordability throughout the community (Design strategy 4). Many of these strategies include public or semi-public pocket parks that contribute to the quantity, diversity and accessibility of community open spaces. The team suggested whole -block redevelopments could be undertaken by co-ops.

What is the green infrastructure within a Medium Density Infill?

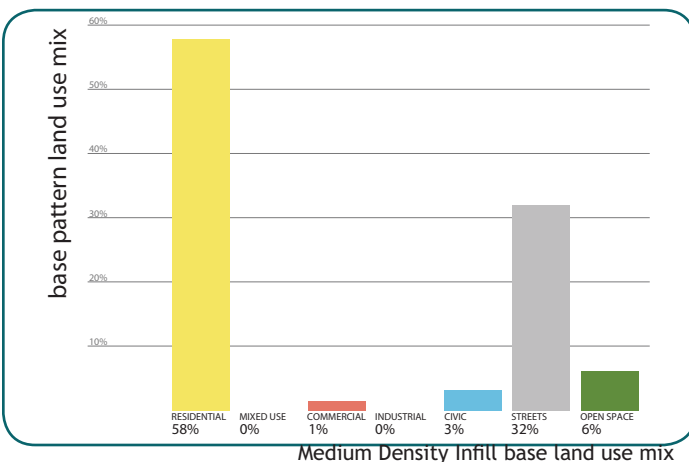
At a larger scale, the Medium Density Infill pattern uses the green corridors of the “grey and green quilt” (Design strategy 1) to connect the major open spaces, provide opportunities for pedestrian and cycling recreation, and perform ecological functions, such as stormwater management and habitat enhancement. Other new open spaces (e.g. pocket parks, transit plazas) also perform stormwater functions through landscape design and permeable paving (Design strategy 6).

What is the phasing, replicability, and resiliency of a Medium Density Infill?

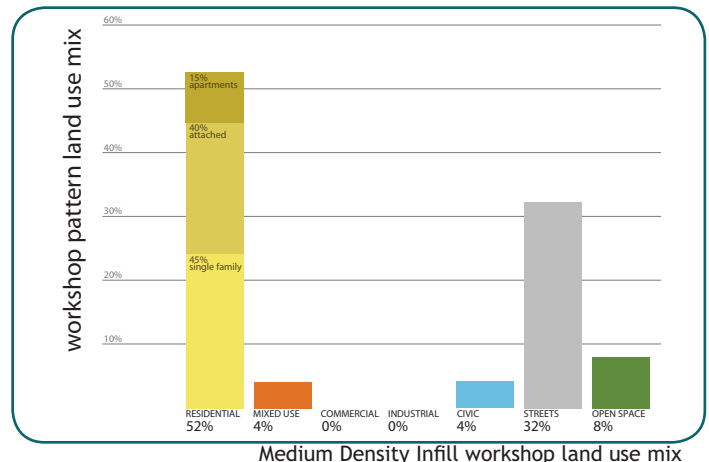
The team proposed intensification strategies that will gradually intensify the neighbourhood over time (Design strategy 4). In general, all the design strategies are applicable to similar sites across Calgary. In particular, the 800x800m “grey and green quilt” of transit and green corridors provides a flexible, replicable, and resilient structure, and ensures all residents are within a 5 minute walk (400m) of both a transit line and a green corridor (Design strategy 1). Generally, with a higher density of population and jobs, the pattern is more transit-supportive and the wider range of housing types means more opportunity for housing affordability and choice.

Above:
The workshop team accommodated over 5,000 new people and 350 new jobs in the 73-ha low density residential neighbourhood explored.

Below:
By using more compact built forms (such as rowhouses and low-rise buildings), the team doubled the population while maintaining almost half of the residential area with a detached single family house character. The retrofitted neighbourhood also has an increased amount of opens space and commercial area (accommodated in mixed-use buildings). The resulting land use mix diversity index is 0.76.



Medium Density Infill base land use mix



Medium Density Infill workshop land use mix