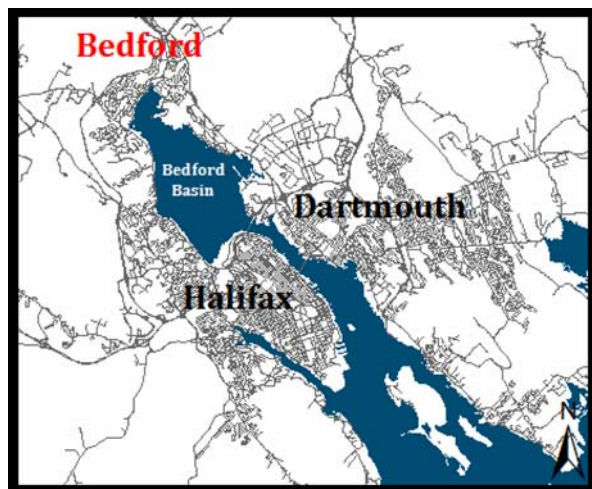


## Examining Changing Street Patterns in Bedford, Nova Scotia, 1945 to 2010.

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Bedford is a coastal community in the Halifax Regional Municipality, Nova Scotia, Canada. The community, located on the north western end of the Bedford Basin, has grown up over time serving as a commuter suburb for neighbouring Dartmouth and Metro Halifax.

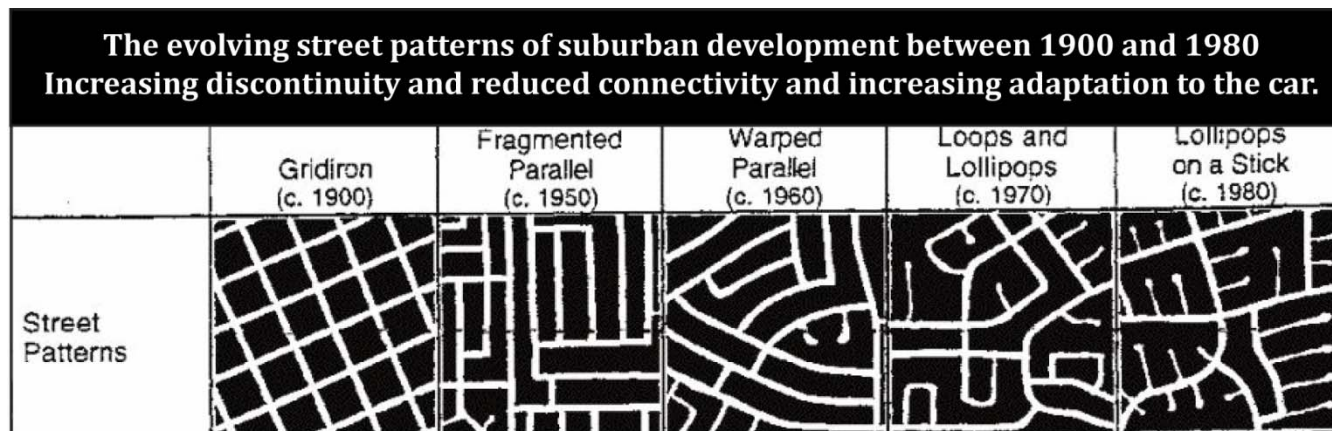
The area of Bedford was chosen for settlement due to its natural beauty, convenience, and strategic location along the coastline of the Bedford Basin (Tolson, 1979). Its location along the shoreline of the Bedford Basin facilitated its growth as a commuter suburb easily accessible from neighbouring Dartmouth and Halifax. Prior to the opening of the Angus L. Macdonald Bridge in 1955, one of

the primary travel routes between Dartmouth and Halifax was around the Bedford Basin. Located at the top of the Basin, Bedford served as a strategic stopping place for those making a journey inland. The newly constructed bridge allowed for an efficient transportation link that provided direct access across the Halifax Harbour. However, Bedford had sufficient time to establish itself as a commuter suburb taking advantage of its location, being equally accessible from Dartmouth and Halifax, and offering an attractive location to live outside of the urban centers.

Throughout its development Bedford has experienced typical North American changes in suburban street patterns, particularly noticeable through changes that occurred between 1945 and 2010. Common changes in suburban street patterns were explored by Owens and Southworth (1993) in *The evolving metropolis - studies of community, neighbourhood and street form at the urban edge* (See Figure 1). Historical and recent road maps of Bedford were used to compare and contrast changes in street patterns in the area, with the goal of comparing identified patterns to those presented by Owens and Southworth (1993).

The area presented in this study does not represent the full extent of the community of Bedford, and especially does not include those areas that the community has extended to today. The area presented was chosen due to the availability of data, in particular the availability of historical maps as it was only possible to compare and contrast the change in street patterns in areas that had available data.

**Figure 1: Evolving street patterns of suburban development, 1900 to 1980**



**Source: Owens and Southworth, 1993**

At the start of the 1900s, commuter trains along the waterfront played a significant role in transportation between Bedford and Halifax, providing an option for those who worked downtown and for school children to efficiently commute between the urban and newly developing suburban areas (Tolson, 1979). However, due to increasing availability and affordability the private automobile saw widespread adoption. The Bedford Highway, one of the oldest roads in the area, has played an important role as an arterial road, providing primary connection both within and to outside the community. It was widened in 1939 in order to accommodate increased use (Edwards, 2007). Commercial development in the area has typically taken place directly along the Bedford Highway, while residential development occurred along streets branching off the Highway (Edward, 2007).

By 1945 the majority of land located directly along the Bedford Basin coastline was already developed (See Map 1). Bedford Highway was already constructed, following the coastline and playing a significant role as an arterial road in the area. Short offshoot streets were located along the Bedford Highway, generally away from the Basin's coastline, displaying a "Fragmented Parallel" street pattern (Owens and Southworth, 1993). This pattern developed out of the gridiron pattern, and was increasingly common in suburban neighbourhoods built for private automobile owners (Owens and Southworth, 1993). The pattern was popular in developing subdivisions due to the limited access it created through reducing the number of access points.

By 1957 there was increased interest in living outside of urban centers, facilitated by the adoption of the private automobile. This demand saw further residential development in Bedford, with new streets and development once again occurring as offshoots from the Bedford Highway, away from the Bedford Basin coastline (See Map 2). Similar to other North American suburbs Bedford saw appearance of the "warped parallel" street pattern just before the 1960s (Owens and Southworth, 1993). This pattern emerged through an effort to create a more rural character in suburban areas, and to shorten the visual length of streets. The transition to an automobile centered subdivision became more noticeable with significant reduction in intersections, street lengths, blocks, and access points. With limited access points streets in the area were no longer used as thoroughfares, but instead used to get to and from private households.

The Bicentennial Highway opened in 1958, running from Joseph Howe Drive in Halifax to Fall River (Smith, 2007) (See Map 3). The highway was initially built as a two-lane highway,

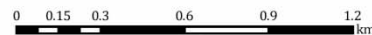
similar to the Bedford Highway, and was to address growing problems of congestion through widespread use of the automobile in the area. The highway helped provide a continuous connection between Halifax and the growing suburban fringe, and an alternative from using the Bedford Highway. However, the Bicentennial Highway also created a barrier that prevented sprawling streets and contained the growing suburban areas to around the Basin.

**Map 1: Bedford Street Patterns - 1945**



**Bedford Street Patterns: 1945**

- Ocean
- Lakes
- Streams
- Railway Track
- Roads
- Fragmented Parallel
- Bedford Highway (Arterial Road)



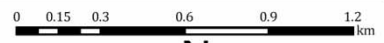
Sources: Halifax Regional Municipality, 2010  
Department of Natural Resources, 1945

Map 2: Bedford Street Patterns - 1957



Bedford Street Patterns: 1957

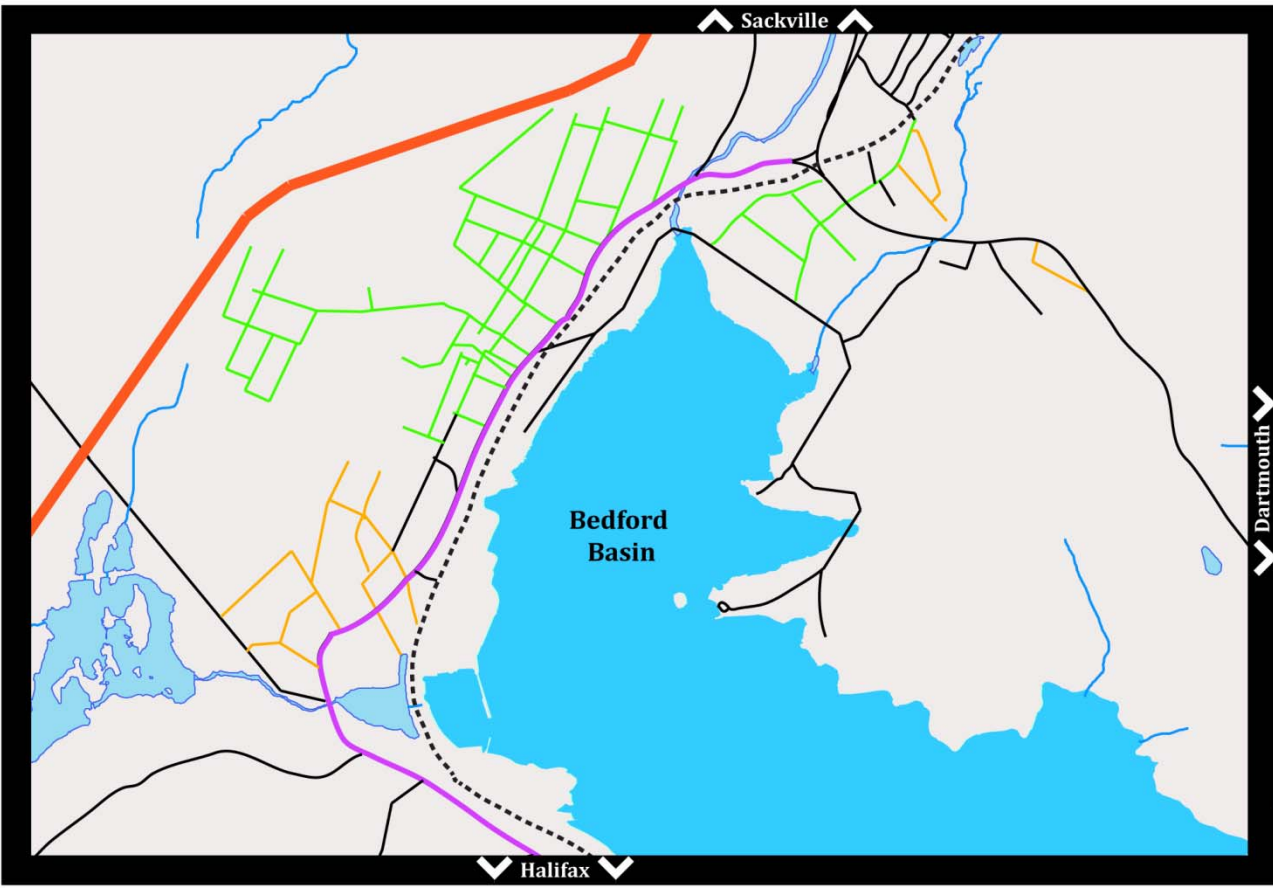
- |         |                                 |                     |
|---------|---------------------------------|---------------------|
| Ocean   | Railway Track                   | Fragmented Parallel |
| Lakes   | Roads                           | Warped Parallel     |
| Streams | Bedford Highway (Arterial Road) |                     |



Sources: Halifax Regional Municipality, 2010  
Graphic Publishers, 1957



Map 3: Bedford Street Patterns - 1970



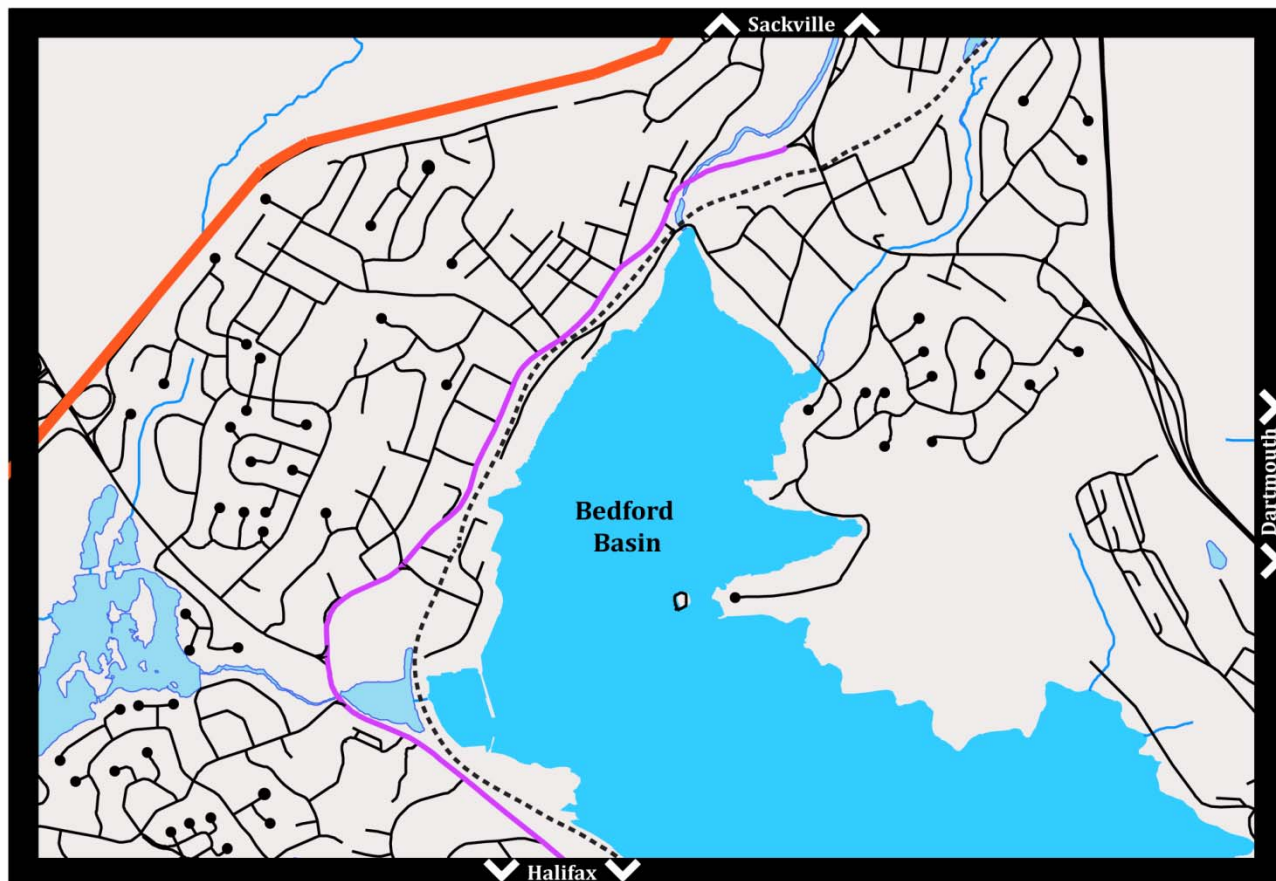
Bedford Street Patterns: 1970

- |         |                                 |                      |
|---------|---------------------------------|----------------------|
| Ocean   | Railway Track                   | Bicentennial Highway |
| Lakes   | Roads                           | Fragmented Parallel  |
| Streams | Bedford Highway (Arterial Road) | Warped Parallel      |

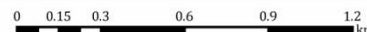
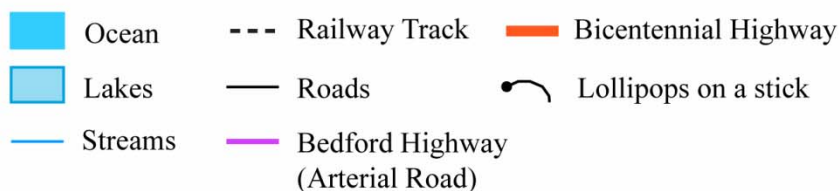


Sources: Halifax Regional Municipality, 2010  
Arrow Map, 1970

**Map 4: Bedford Street Patterns – 2010**



**Bedford Street Patterns: 2010**



Sources: Halifax Regional Municipality, 2010

Since the 1980s the Bedford area experienced an explosion of residential development, with a strong emergence of “lollipops on a stick” street pattern (See Map 4). This occurred through suburban development maintaining a primary focus on the private automobile. The “lollipop on a stick” street pattern helps exclude traffic at the local street level and permits good flow at the collector and arterial levels (Owens and Southworth, 1993). The pattern allows for a higher total number of lots on shorter streets and succeeds in creating quiet streets that are relatively safe for children. However, a reliance on loops and cul-de-sacs further reduces pedestrian access within the community, and increasingly promotes the use of the private automobile (CMHC, 2002; Owens and Southworth, 1993).

There has been little change in street patterns in the area, with the “lollipops on a stick” pattern retaining a strong presence to this day in newer sections of the community. The Bicentennial Highway has continued to contain suburban sprawl and sprawling street patterns,

with the area between the Bedford Highway and the Bicentennial Highway hosts most suburban development in the community. It is only recently though the increasing demand for suburban development and lack of developable land that large scale suburban development is being proposed and slowly seen on the other side of the Bicentennial Highway.

Changes in Bedford street patterns from the 1940s to 2010 occurred through the desire for a commuter suburb that has efficiently balanced requirements for land-use, neighbourhood liveability and efficient connections to surrounding urban areas, increasingly to accommodate the widespread use of the private automobile. Over time street patterns in the community have encouraged a sprawling and disconnected community, providing automobile access at the expense of other modes of transportation, in particular limiting pedestrian access in the area.

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**Figure 1: Map Source = Halifax Regional Municipality, 2010**