Public Works Department
FY 2019-2020 Budget
Town of Brunswick

Jay Astle
Public Works Director
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Ryan Barnes, PE, CPESC
Town Engineer
rbarnes@brunswickme.org

Tom Mann
Operations Manager
tmann@brunswickme.org

Office: 725-6654
FY 2016-2017 Organizational Chart
Public Works Department

Public Works Director/Town Engineer

Operations Manager

Engineering:
1 Surveyor

Office:
1 Operations Assistant
1 Bookkeeper

Garage:
1 Foreman/Mechanic
2 Mechanic
1 Half-Time Janitor

Highway:
2 Working Foremen
3 Heavy Equip Oper
2 Light Equip Oper
7.5 Truck Drivers

Landfill:
1 Equip Oper
2 Full-Time Attendant
0.5 Truck Drivers

26 Regular Employees – 25.5 FTE
FY 2019-2020 Organizational Chart
Public Works Department

Town Engineer  Public Works Director
  Asst. Town Engineer  Operations Manager
  
Office:
  1 Operations Assistant
  1 Bookkeeper

Garage:
  1 Foreman/Mechanic
  2 Mechanic
  1 Half-Time Janitor

Highway:
  2 Working Foremen
  3 Heavy Equip Oper
  2 Light Equip Oper
  7.5 Truck Drivers

Landfill:
  1 Equip Oper
  2 Full-Time Attendant
  0.5 Truck Drivers

26 Regular Employees – 25.5 FTE
Historical Trends
Public Works Department

2009-2019 Increase in Roadway Mileage
Historical Trends
Public Works Department

2009-2019 Increase in Roadway Mileage

2.78 Mile Increase of 2.0%
Historical Trends
Public Works Department

2009-2019 Increase in Sidewalk Mileage
Historical Trends
Public Works Department

2009-2019 Increase in Sidewalk Mileage

2.12 Mile Increase of 5.6%
FY 2019-2020 Budget Request
Public Works

26 Regular Employees – 25.5 FTE

Town Engineer
- Asst. Town Engineer

Public Works Director
- Operations Manager
  - Office:
    - 1 Operations Assistant
    - 1 Bookkeeper

Garage:
- 1 Foreman/Mechanic
- 2 Mechanic
- 1 Half-Time Janitor

Highway:
- 2 Working Foremen
- 3 Heavy Equip Oper
- 2 Light Equip Oper
- 7.5 Truck Drivers

Landfill:
- 1 Equip Oper
- 2 Full-Time Attendant
- 0.5 Truck Drivers
## FY 2019-2020 Budget Request
### Public Works

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<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Administration</td>
<td>$450,770</td>
<td>$587,058</td>
<td>$375,620</td>
<td>($211,438)</td>
<td>-36%</td>
</tr>
<tr>
<td>General Maintenance</td>
<td>$1,706,161</td>
<td>$1,839,369</td>
<td>$1,982,841</td>
<td>$143,472</td>
<td>8%</td>
</tr>
<tr>
<td>Collection</td>
<td>$620,250</td>
<td>$657,040</td>
<td>$653,554</td>
<td>($3,486)</td>
<td>-1%</td>
</tr>
<tr>
<td>Recycling</td>
<td>$328,341</td>
<td>$341,717</td>
<td>$479,491</td>
<td>$137,774</td>
<td>40%</td>
</tr>
<tr>
<td>Central Garage</td>
<td>$728,470</td>
<td>$739,838</td>
<td>$742,785</td>
<td>$2,947</td>
<td>0%</td>
</tr>
<tr>
<td>Totals:</td>
<td>$3,833,992</td>
<td>$4,165,022</td>
<td>$4,234,291</td>
<td>$69,269</td>
<td>2%</td>
</tr>
</tbody>
</table>

<table>
<thead>
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<tbody>
<tr>
<td>Personnel</td>
<td>$1,097,498</td>
<td>$1,314,842</td>
<td>$1,156,357</td>
<td>($158,485)</td>
<td>-12%</td>
</tr>
<tr>
<td>Benefits</td>
<td>$492,830</td>
<td>$596,088</td>
<td>$573,278</td>
<td>($22,810)</td>
<td>-4%</td>
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<tr>
<td>Contractual</td>
<td>$1,354,952</td>
<td>$1,618,652</td>
<td>$1,745,306</td>
<td>$126,654</td>
<td>8%</td>
</tr>
<tr>
<td>Materials &amp; Supplies</td>
<td>$882,347</td>
<td>$635,440</td>
<td>$699,350</td>
<td>$63,910</td>
<td>10%</td>
</tr>
<tr>
<td>Capital</td>
<td>$6,365</td>
<td>$ -</td>
<td>$60,000</td>
<td>$60,000</td>
<td></td>
</tr>
<tr>
<td>Totals:</td>
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</table>
FY 2019-2020 Budget Request
Public Works

- General Maintenance: 47%
- Collection: 15%
- Recycling: 11%
- Central Garage: 18%
- Administration: 9%
FY 2019-2020 Budget Request
Public Works

- Materials & Supplies, 17%
- Contractual, 41%
- Personnel, 27%
- Benefits, 14%
- Capital, 1%
FY 2019-2020 Budget Request
Engineering

26 Regular Employees – 25.5 FTE
## FY 2019-2020 Budget Request

### Engineering

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</tr>
</thead>
<tbody>
<tr>
<td>Personnel</td>
<td>$ -</td>
<td>$ -</td>
<td>$ 152,729</td>
<td>$ 152,729</td>
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<tr>
<td>Benefits</td>
<td>$ -</td>
<td>$ -</td>
<td>$ 62,957</td>
<td>$ 62,957</td>
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<tr>
<td>Contractual</td>
<td>$ -</td>
<td>$ -</td>
<td>$ 23,190</td>
<td>$ 23,190</td>
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<tr>
<td>Materials &amp; Supplies</td>
<td>$ -</td>
<td>$ -</td>
<td>$ 7,690</td>
<td>$ 7,690</td>
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</tr>
<tr>
<td>Capital</td>
<td>$ -</td>
<td>$ -</td>
<td>$ 10,000</td>
<td>$ 10,000</td>
<td></td>
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<tr>
<td>Totals:</td>
<td>$ -</td>
<td>$ -</td>
<td>$ 256,566</td>
<td>$ 256,566</td>
<td></td>
</tr>
</tbody>
</table>
FY 2019-2020 Budget Request
Engineering

- Personnel: 60%
- Benefits: 25%
- Contractual: 9%
- Capital: 4%
- Materials & Supplies: 3%
- Personnel: 60%
FY 2019-2020 Budget Request
Combined (Public Works and Engineering)

26 Regular Employees – 25.5 FTE
### FY 2019-2020 Budget Request
**Combined (Public Works and Engineering)**

<table>
<thead>
<tr>
<th>Totals</th>
<th>Actual 2017-2018</th>
<th>Budget 2018-2019</th>
<th>Request 2019-2020</th>
<th>Increase/ (Decrease)</th>
<th>% Change</th>
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<tbody>
<tr>
<td>Administration</td>
<td>$ 450,770</td>
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<td>$ 45,128</td>
<td>7.7%</td>
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<td>Central Garage</td>
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<td>$ 739,838</td>
<td>$ 742,785</td>
<td>$ 2,947</td>
<td>0.4%</td>
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<tr>
<td><strong>Totals:</strong></td>
<td><strong>$ 3,833,992</strong></td>
<td><strong>$ 4,165,022</strong></td>
<td><strong>$ 4,490,857</strong></td>
<td><strong>$ 325,835</strong></td>
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<td><strong>$ 1,309,086</strong></td>
<td><strong>(5,756)</strong></td>
<td><strong>-0.4%</strong></td>
</tr>
<tr>
<td><strong>Benefits</strong></td>
<td><strong>$ 492,830</strong></td>
<td><strong>$ 596,088</strong></td>
<td><strong>$ 636,235</strong></td>
<td><strong>$ 40,147</strong></td>
<td><strong>6.7%</strong></td>
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<tr>
<td><strong>Contractual</strong></td>
<td><strong>$ 1,354,952</strong></td>
<td><strong>$ 1,618,652</strong></td>
<td><strong>$ 1,768,496</strong></td>
<td><strong>$ 149,844</strong></td>
<td><strong>9.3%</strong></td>
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<tr>
<td><strong>Materials &amp; Supplies</strong></td>
<td><strong>$ 882,347</strong></td>
<td><strong>$ 635,440</strong></td>
<td><strong>$ 707,040</strong></td>
<td><strong>$ 71,600</strong></td>
<td><strong>11.3%</strong></td>
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<tr>
<td><strong>Capital</strong></td>
<td><strong>$ 6,365</strong></td>
<td><strong>-</strong></td>
<td><strong>$ 70,000</strong></td>
<td><strong>$ 70,000</strong></td>
<td><strong>8%</strong></td>
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FY 2019-2020 Budget Request
Combined (Public Works and Engineering)
FY 2019-2020 Budget Request
Combined (Public Works and Engineering)
Major Cost Increases in Budget

- 7% increase in benefits: $40,000
- 40% increase in collection/disposal of recycling: $138,000
- 33% increase in de-icing materials: $66,000
- Upgrades to existing plow trucks: $60,000
Ten-Year Comparative Budget
Public Works Department

<table>
<thead>
<tr>
<th>Year</th>
<th>Budget (in $)</th>
</tr>
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<tbody>
<tr>
<td>2010</td>
<td>$3,064,200</td>
</tr>
<tr>
<td>2011</td>
<td>$3,221,383</td>
</tr>
<tr>
<td>2012</td>
<td>$3,040,274</td>
</tr>
<tr>
<td>2013</td>
<td>$3,389,533</td>
</tr>
<tr>
<td>2014</td>
<td>$3,690,883</td>
</tr>
<tr>
<td>2015</td>
<td>$3,988,381</td>
</tr>
<tr>
<td>2016</td>
<td>$3,794,741</td>
</tr>
<tr>
<td>2017</td>
<td>$3,954,691</td>
</tr>
<tr>
<td>2018</td>
<td>$4,165,022</td>
</tr>
<tr>
<td>2019</td>
<td>$4,490,857</td>
</tr>
</tbody>
</table>
Paving History, 2009-2018

Miles of Roads Paved
Sidewalk Repair History, 2008-2018
Linear Feet of Sidewalk

- 2008: 2,620
- 2009: 4,250
- 2010: 8,405
- 2011: 6,971
- 2012: 10,480
- 2013: 7,765
- 2014: 6,716
- 2015: 1,905
- 2016: 910
- 2017: 2,460
- 2018: 2,900
Pavement Management

• Update of Pavement Condition Ratings
• Revision of the Pavement Management Plan
• Use of new techniques to preserve our roads and extend our paving dollars
Pavement Management
Update of Pavement Condition Ratings

StreetScan will be collecting new pavement conditions and updating Pavement Condition Ratings
Pavement Management
Revision of the Pavement Management Plan

- Map-based application
- Computer-automated ranking
- Data-driven decision making
Pavement Management
Preventative Maintenance vs. Rehabilitation

Figure 1
*Graph from TRNews 228
Pavement Management
Preventative Maintenance vs. Rehabilitation

Figure 1
*Graph from TRNews 228
### Pavement Management

#### Paving History

<table>
<thead>
<tr>
<th>Last 10 Years (&gt;=2009)</th>
<th>44.9</th>
<th>30.82%</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;10 Yrs to 15 Yrs (2004-2009)</td>
<td>28.7</td>
<td>19.70%</td>
</tr>
<tr>
<td>&gt;15 Yrs to 20 Yrs (1999-2004)</td>
<td>34.9</td>
<td>23.96%</td>
</tr>
<tr>
<td>&gt;20 Yrs to 25 Yrs (1994-1999)</td>
<td>18.9</td>
<td>12.98%</td>
</tr>
<tr>
<td>Paved &gt;25 Years (&lt;=1994)</td>
<td>18.3</td>
<td>12.53%</td>
</tr>
</tbody>
</table>

100.00%

37.2 miles or 25.51% of our roadways have not been paved in over 20 years
Pavement Management

2019 Average Pavement Condition Rating (Projected)

Average Pavement Condition Rating

<table>
<thead>
<tr>
<th>Year</th>
<th>Condition Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>1994</td>
<td>2.91</td>
</tr>
<tr>
<td>1997</td>
<td>3.10</td>
</tr>
<tr>
<td>2003</td>
<td>3.20</td>
</tr>
<tr>
<td>2014</td>
<td>3.18</td>
</tr>
<tr>
<td>2019 (Projected)</td>
<td>2.54</td>
</tr>
</tbody>
</table>
Pavement Management

2019 Average Pavement Condition Rating (Projected)

Average Pavement Condition Rating

- **Good Roads**
- **Fair Roads**
- **Poor Roads**

Yearly Condition Ratings:
- 1994: 2.91
- 1997: 3.10
- 2003: 3.20
- 2014: 3.18
- 2019 (Projected): 2.54
## Pavement Management

### 2019 Average Pavement Condition Rating (Projected)

<table>
<thead>
<tr>
<th>PCR Rating</th>
<th>Condition</th>
<th>% Of Roads</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.00-1.60</td>
<td>Very Poor</td>
<td>3.6%</td>
</tr>
<tr>
<td>1.61-2.00</td>
<td>Poor</td>
<td>8.4%</td>
</tr>
<tr>
<td>2.01-2.40</td>
<td>Fair-Poor</td>
<td>17.9%</td>
</tr>
<tr>
<td>2.41-2.80</td>
<td>Fair</td>
<td>18.8%</td>
</tr>
<tr>
<td>2.81-3.20</td>
<td>Fair-Good</td>
<td>15.0%</td>
</tr>
<tr>
<td>3.21-3.60</td>
<td>Good</td>
<td>10.3%</td>
</tr>
<tr>
<td>3.61-5.00</td>
<td>Very good</td>
<td>26.1%</td>
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## Pavement Management

### 2019 Average Pavement Condition Rating (Projected)

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Good Roads – 36.4%

Future Overlay/Light Capital Paving
## Pavement Management

### 2019 Average Pavement Condition Rating *(Projected)*

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<tr>
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<td>26.1%</td>
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</table>

**Fair Roads – 33.8%**

**Heavy Overlay/Mill and Fill**
## Pavement Management

### 2019 Average Pavement Condition Rating (Projected)

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**Poor Roads – 29.9%**

Reclaim/Reconstruct
Winter Operations

- Establish a New Level of Service
- Revise Plow Routes
- Modify Treatment Methods
- Modify Equipment
- Benefits of New Approach
- Anticipated Savings
Winter Operations
Establish a New Level of Service

Roadway Treated with Sand/Salt Mix
Same Roadway Treated with Salt
Winter Operations

Revise Plow Routes

1. Identify Priority Corridors
   - Primary
     - Arterials (Pleasant Street)
     - Major collectors (Harpstown Road)
   - Secondary
     - Minor collectors (Old Bath Road)
     - Local collectors (Pleasant Hill Road)
   - Tertiary
     - Residential streets (Noble Street)

2. Revise plow routes based on Priority Corridors and Level of Service needs
Winter Operations
Modify Treatment Methods (Sand Reduction)

[Graph showing Winter Sand and Rock Salt Usage (Statewide)]
Winter Operations
Modify Treatment Methods (Sand Reduction)

Significant Reduction in Sand
Winter Operations
Modify Treatment Methods (Sand Reduction)

Salt Usage Continues to Trend With Frequency and Severity of Storms
Winter Operations
Modify Treatment Methods

- Treated salt works at lower temperatures
- Treated Salt stays on the road better
- Prevents a bond from forming between the pavement and snow

<table>
<thead>
<tr>
<th>Deicing Fluid</th>
<th>PNSDOT Relative Corrosion Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magic-O™</td>
<td>7.87</td>
</tr>
<tr>
<td>Distilled Water</td>
<td>0</td>
</tr>
<tr>
<td>Rock Salt NaCl₂</td>
<td>100</td>
</tr>
<tr>
<td>Calcium Chloride (CaCl₂)</td>
<td>121</td>
</tr>
<tr>
<td>Magnesium Chloride (MgCl₂)</td>
<td>80</td>
</tr>
</tbody>
</table>
Winter Operations
Modify Equipment

- Calibrate All Trucks
- Install on board liquid application equipment
- Install/upgrade ground speed controls
- Install road temperature measuring equipment
Winter Operations
Benefits of New Approach

- Measured application of salt and liquids prevents bonding of snow and ice to the pavement
- Treated salt works faster, at lower temperatures, and helps eliminate “bounce and scatter”
- Magic-O™ liquid has been recognized by the EPA as safe for the environment
- Calibrated approach ensures that the right material is placed at the right time in the right amount
- SAND HAS VIRTUALLY NO MELTING PROPERTIES
Winter Operations

Anticipated Savings

- Overtime – Less time required to clean up after the storm
- Vehicles – Fewer return trips to get sand will reduce wear and tear on the vehicles and increase the amount of time vehicles are on the road plowing
- Contractual Services
  - Sweeping
  - Catch Basins
  - Plowing