Entity Tables, ERD, and Schema

Entity Tables:

- CityDistricts: records services and assets for all city districts (will be implemented)
    - cityDistrictId: int, auto_increment, unique, not NULL, PK
    - dName: varchar(255), unique, not NULL
    - fStationId: int, FK
    - pStationId: int, FK
    - sServiceId: int, FK
    - districtBudget: double, not NULL

    - Relationship: M:1 between CityDistrict and FireStations with fStationId being FK in CityDistrict
    - Relationship: M:1 between CityDistrict and PoliceStations with pStationId being a FK in CityDistrict
    - Relationship: M:M between CityDistrict and schools with cityDistrictID being a FK in SchoolsToCityDistricts
    - Relationship: M:1 between CityDistrict and SocialServices with sServiceID being a FK in CityDistricts

- FireStations: records the information on all fire stations in a city (will be implemented)
    - fireStationId: int, auto_increment, unique, not NULL, PK
    - fName: varchar(255), unique, not NULL
    - fCost: double, not NULL

    - Relationship: 1:M between FireStations and CityDistrict with fireStationId being a FK in CityDistrict

- PoliceStations: records the information on all police stations in a city (will be implemented)
    - policeStationId: int, auto_increment, unique, not NULL, PK
    - pName: varchar(255), unique, not NULL
    - pCost: double, not NULL

    - Relationship: 1:M between PoliceStations and CityDistrict with policeStationID being a FK in CityDistrict

- Schools: records the information for all schools in a city (will be implemented)
    - schoolId: int, auto_increment, unique, not NULL, PK
    - sName: varchar(255), unique, not NULL
    - sCost: double, not NULL

    - Relationship: M:M between Schools and CityDistrict with schoolId being a FK in SchoolsToCityDistricts

- SocialServices: records the information on a given social service type (will be implemented)
  - socialServiceId: int, auto_increment, unique, not NULL, PK
  - serviceType: varchar(255), unique, not NULL
  - sSCost: double, not NULL

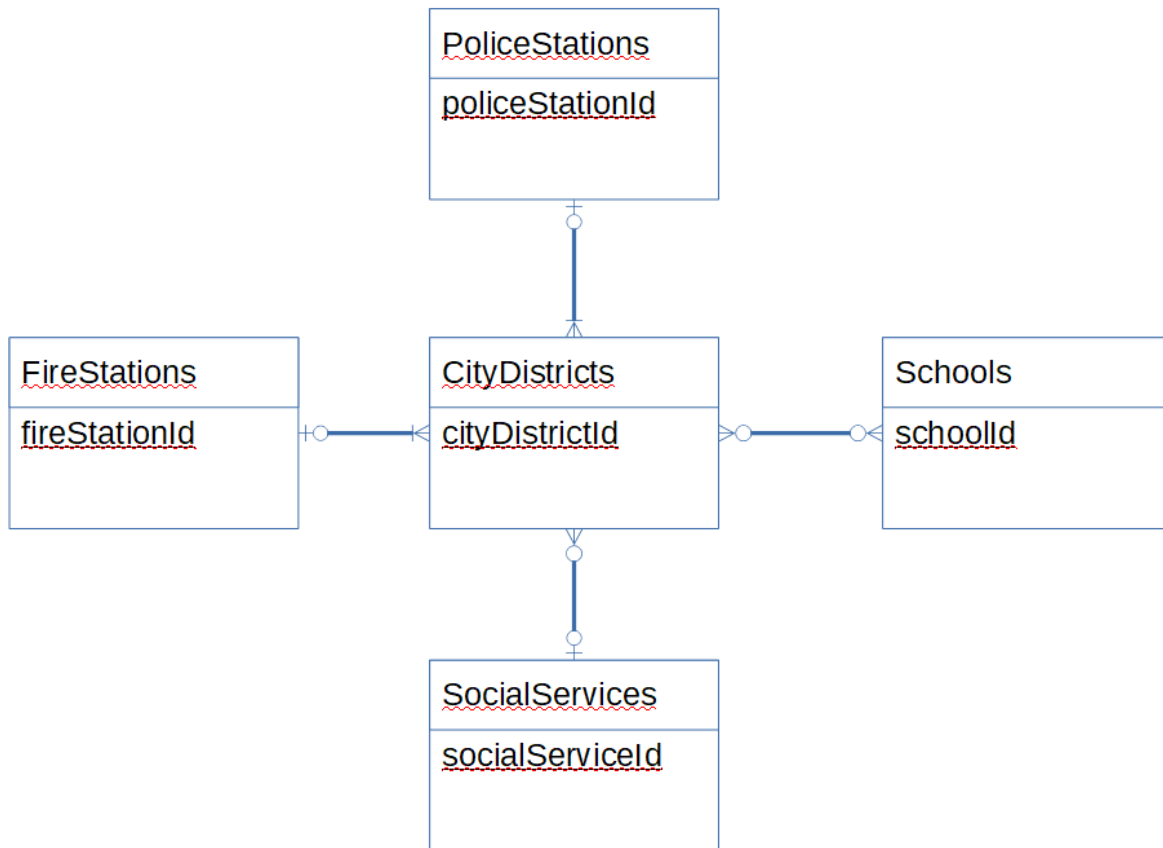 - Relationship: 1:M between SocialServices and CityDistrict with socialServiceId being a FK in CityDistricts

Intersection Tables
- SchoolsToCityDistricts: records which schools serve which city districts (will be implemented)
- sCDId: int, auto_increment, unique, not NULL, PK
- sId: int, FK
- cDId: int, FK

- Relationship: M:1 between SchoolsToCityDistricts and schools with schoolId being a FK in SchoolsToCityDistricts
- Relationship: M:1 between SchoolsToCityDistricts and CityDistricts with cityDistrictID being a FK in SchoolsToCityDistricts
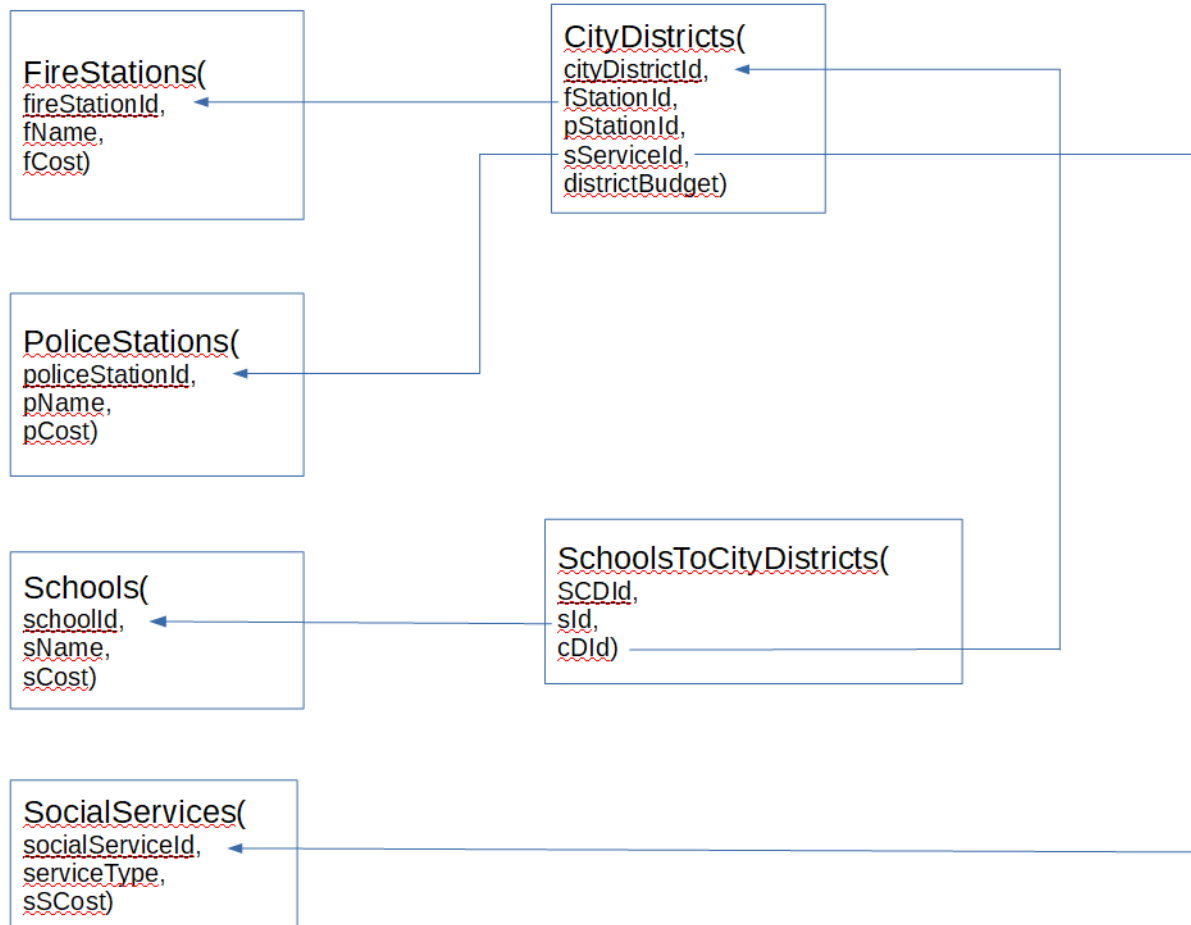
Assumptions
- A city district can be served by no more than one fire station and one police station
- A city district can be served by any number of schools and social services
- A city district cannot be served by more than one social service of a given type (i.e. only one childcare service, one food bank, etc.)

Entity-Relationship Diagram (ERD)

PoliceStations
policeStationId

FireStations
fireStationId

CityDistricts
cityDistrictId

Schools
schoolId

SocialServices
socialServiceId

Schema

Schema represents final implementation. Relationship between SocialServices and CityDistricts was originally M:M, but was changed to 1:M for the final implementation.

FireStations(
fireStationId,
fName,
fCost)

CityDistricts(
cityDistrictId,
fStationId,
pStationId,
sServiceId,
districtBudget)

PoliceStations(
policeStationId,
pName,
pCost)

Schools(
schoolId,
sName,
sCost)

SchoolsToCityDistricts(
SCDId,
sId,
cDId)

SocialServices(
socialServiceId,
serviceType,
sSCost)

Screenshots of UI

ADD/UPDATE/DELETE/FILTER CityDistricts and SchoolsToCityDistricts page

Home		City Districts Information

Add, Edit, or Remove Districts

Select a query:
- Add District or School
- Update District
- Delete District or School

Min Budget	Max Budget	Update

City Districts

ID	District Name	Police Station	Fire Station	Social Services	District Budget
1	District 01		1	1	2000000
2	District 02	2	2	1	5000000
3	District 03	3	3	2	100000
5	updated test	3	7	6	7000000001
6	Test	2	1	3	4
8	Test 1	3	2	6	90000000
10	Add1	3	7	3	32

Schools In Districts

District Name	Schools In District
District 01	s8	School 03
District 02	School 01	School 02	School 03
District 03	School 01	School 03
Test	School 01

ADD/UPDATE/DELETE PoliceStations page

Home		City Police Station Information

Add, Edit, or Remove Police Stations

Select a query:
- Add Police Station
- Update Police Station
- Delete Police Station

City Police Stations

ID	Police Station Name	Police Station Operational Cost
1	Police 01	1000
2	Police 02	1100
3	Police 03	2200
7	p5	5555555
8	p8	88888
10	TEST	1

ADD/UPDATE/DELETE FireStations page

Home		City Fire Station Information

Add, Edit, or Remove Fire Stations

Select a query:
Add Fire Station
Update Fire Station
Delete Fire Station

City Fire Stations

ID	Fire Station Name	Fire Station Operational Cost
2	Fire 02	2000
3	Fire 03	3500
5	p5	55555

ADD/UPDATE/DELETE Schools page

Home		City District Schools Information

Add, Edit, or Remove City Schools

Select a query:
Add School
Update School
Delete School

City Schools

ID	School Name	School Cost
1	School 01	8000
2	School 02	8800
3	School 03	8880
6	s6	66666666
7	s7	777777
8	s8	888888

ADD/UPDATE/DELETE SocialServices page

Add, Edit, or Remove Social Services

Select a query:
- Add Social Service
- Update Social Service
- Delete Social Service

City Social Services

Social ID	Social Service Type	Social Service Cost
1	Medical	44444
2	Housing	111
3	Garbage	66666
4	ss4	444444
6	ss5	5555555
7	Flying	7777777
8	Driving	88888