

A6 - Train Schedules

Ohio Hub Schedules - Train Numbering System

100's - Toronto to Cincinnati - Even WB, Odd EB

200's - Pittsburgh to Chicago via Cleveland - Even WB, Odd EB

300's - Pittsburgh to Chicago via Columbus - Even WB, Odd EB

400's - Columbus to Detroit - Even NB, Odd SB

Toronto, ON to Cincinnati, OH

All times are CST; Dec 8, 2006

Station	Miles	100	102	104	106	108	110	112	114	116	118
Read Down											
Toronto	0.0					6:37	8:56		13:07	16:56	18:00
Oakville	21.4					6:59			13:29		18:22
Aldershot	34.6					7:14			13:44		18:37
St. Catharines	71.2					8:02			14:32		19:25
Niagara Falls, ON	82.4					8:27	10:43		14:57	18:43	19:50
Niagara Falls, NY	84.7					8:47	11:03		15:17	19:03	20:10
Buffalo	108.1				7:00	9:20	11:35		15:50	19:35	20:42
Dunkirk	148.4				7:32	9:52			16:22		
Erie	195.1				8:06	10:26	12:36		16:56	20:36	
Ashtabula	235.8				8:38	10:58			17:28		
Painesville	261.3				8:59	11:19			17:49		
Cleveland (Arr)	289.8				9:25	11:45	13:45		18:15	21:45	
Cleveland (Dep)	0.0		5:30	7:20	9:40	12:00	14:00	17:00	18:30	22:00	
Berea	10.5		5:44	7:34	9:54	12:14	14:14	17:14	18:44	22:14	
Galion	80.5			8:24		13:04			19:34	23:04	
North Columbus	125.0	(Fr Pt Cols)		8:57		13:37			20:07	23:37	
Columbus	135.5	6:30	7:08	9:10	11:18	13:50	15:38	18:38	20:20	23:50	
Springfield	180.7			9:45		14:25			20:55	(To Pt Cols)	
Dayton	205.4	7:24	8:03	10:10	12:13	14:50	16:33	19:33	21:20		
Middletown	226.8			10:31		15:11			21:41		
Sharonville	244.1	7:59	8:37	10:48	12:47	15:28	17:07	20:07	21:58		
Cincinnati	257.9	8:19	8:58	11:09	13:08	15:49	17:28	20:28	22:19		

* The former 8:40 southbound from Cleveland has been adjusted to leave 1:20 earlier, giving a more favorable arrival time in Columbus.

Station	Miles	101	103	105	107	109	111	113	115	117	119
Read Down											
Cincinnati	0.0			6:30	7:30	9:30	12:00	15:00	17:30	18:30	21:30
Sharonville	13.8			6:48	7:48	9:48	12:18	15:18	17:48	18:48	21:48
Middletown	31.1				8:06		12:36			19:06	22:06
Dayton	52.5			7:22	8:28	10:22	12:58	15:52	18:22	19:28	22:28
Springfield	77.2		(Fr Pt Cols)		8:53		13:23			19:53	22:53
Columbus	122.4		5:15	8:17	9:28	11:17	13:58	16:47	19:17	20:28	23:28
North Columbus	132.9				9:41		14:11			20:41	(To Pt Cols)
Galion	177.4				10:14		14:44			21:14	
Berea	247.4		6:39	9:41	11:02	12:41	15:32	18:11	20:41	22:02	
Cleveland (Arr)	257.9		6:54	9:56	11:17	12:56	15:47	18:26	20:56	22:17	
Cleveland (Dep)	0.0		7:09	10:11			16:02	18:41	21:11		
Painesville	28.5		7:32					19:04	21:34		
Ashtabula	54.0		7:53					19:25	21:55		
Erie	94.7		8:24	11:15			17:06	19:56	22:26		
Dunkirk	141.4		8:59					20:31	23:01		
Buffalo	181.8	6:00	9:30	12:15			18:06	21:02	23:32		
Niagara Falls, NY	205.2	6:34	10:04	12:49			18:40	21:36			
Niagara Falls, ON	207.5	6:54	10:24	13:09			19:00	21:56			
St. Catharines	218.7	7:16	10:46					22:18			
Aldershot	255.2	8:04	11:34					23:06			
Oakville	268.4	8:18	11:48					23:20			
Toronto	289.8	8:39	12:09	14:55			20:46	23:41			

Chicago, IL to Pittsburgh PA

All times are CST; Dec 8, 2006

Station - Read Down	Miles	301	201	203	303	305	205	307	207	209	309	211	311	213	313	215	315	217	219	317	221
CHICAGO, IL - UNION STATION	0.0					5:13	6:00	6:55	8:55	9:45		11:10	12:31		14:55	15:30	16:13		18:00	18:13	20:20
Gary, IN - Regional Airport	23.0					5:38		7:20	9:20			11:35	12:56		15:20	15:55	16:38			18:38	20:45
Plymouth, IN	84.7					6:17		7:59	9:59			12:14	13:35		15:59	16:34	17:17			19:17	21:24
Warsaw, IN	109.8					6:36		8:18	10:18			12:33	13:54		16:18	16:53	17:36			19:36	21:43
Ft. Wayne, IN (Arr)	148.8			5:10		7:07	7:43	8:49	10:48	11:28	→ 11:37	13:03	14:25	→ 14:33	16:49	17:23	18:07	→ 18:15	19:43	20:07	22:13
Defiance, OH	192.4					↓		↓	11:26		↓	13:41	↓		18:01	↓				↓	22:51
Toledo, OH	247.1			6:30		9:03		↓	12:13	12:48	↓	14:28	↓	15:53	↓	18:48	↓	19:34	21:03	↓	23:38
Sandusky, OH	294.1								12:54			15:09			19:29						0:19
Elyria, OH	329.1					↓		↓	13:21		↓	15:36	↓		19:56	↓				↓	0:46
CLEVELAND, OH (Arr)	353.6			7:50		↓		↓	13:43	14:08	↓	15:58	↓	17:13	↓	20:18	↓	20:54	22:23	↓	1:08
CLEVELAND, OH (Dep)	0.0		6:00	8:00				10:33	14:18			16:08		17:23		20:28					21:04
Hudson/Macedonia	26.5		6:28			↓		↓	14:46		↓	16:07	↓	17:51	↓	20:56	↓	21:32		↓	
Warren	66.7		7:02			↓		↓	15:21		↓	16:26	↓	18:26	↓	21:30	↓	22:07		↓	
Youngstown	78.5		7:17					11:51	15:36					18:41		21:45		22:22			
Beaver Falls	114.3		7:58			↓		↓	16:16		↓	17:21	↓	19:21	↓	22:26	↓	23:02		↓	
PITTSBURGH, PA	144.3		8:31	10:10				13:05	16:50		↓	18:18	↓	19:55	↓	22:59	↓	23:36		↓	
Fort Wayne, IN (Dep)	0.0					5:49	7:07	8:49			11:37		14:25		16:49		18:07				20:07
Lima, OH	65.0					6:36	7:53	9:36			12:23		15:12		17:36		18:53				20:53
Ada, OH	79.0					6:49		9:49							17:49						21:07
Dunkirk, OH	95.0					6:56		9:56							17:56						21:13
Kenton, OH	106.0					7:01		10:01							18:01						21:19
Marysville, OH	138.0					7:35	8:48	10:35			13:18		16:07		18:35		19:48				21:53
Hilliard, OH	159.0					7:56		10:56							18:56						22:14
Columbus, OH (Arr)	165.0					8:12	9:23	11:12			13:53		16:42		19:12		20:23				22:30
<i>Conn. Trn from Cincinnati</i>						105	107	109			111		113		115		117				
Columbus, OH (Dep)	0.0		5:25			8:27	9:38	11:27			14:08		16:57		19:27		20:38				
Pt Col Airport, OH	7.0		5:36			8:38	9:49	11:38			14:19		17:08		19:38		20:49				
Newark, OH	34.0		6:02			9:04	10:15	12:04			14:45		17:34		20:04		21:15				
Coshocton, OH	69.0		6:28			9:30							18:00		20:30						
Steubenville, OH	148.0		7:34			10:36							19:06		21:36						
Carnegie, PA	181.0		8:13			11:15							19:45		22:15						
PITTSBURGH, PA	193.0		8:40			11:42							20:12		22:42						

Station - Read Down	Miles	300	200	302	304	202	204	306	206	308	208	310	210	212	214	312	216	314	218	316	220
PITTSBURGH, PA	0.0							5:44		7:53								16:54			17:59
Carnegie, PA	12.0							6:11		8:20								17:22			18:26
Steubenville, OH	45.0							6:50		8:59								18:00			19:05
Coshocton, OH	124.0							7:56		10:05								19:07			20:11
Newark, OH	159.0			5:42	6:21			8:22		10:31		13:03				17:51		19:33			20:37
Pt Col Airport, OH	186.0			6:08	6:47			8:48		10:57		13:28				18:17		19:58			21:03
Columbus, OH (Arr)	193.0			6:20	6:58			9:00		11:08		13:40				18:28		20:10			21:15
<i>Conn. Trn to Cincinnati</i>				100	102			104		106		108				112		114			
Columbus, OH (Dep)	0.0	5:00		6:35	7:13			9:15		11:33		13:55				18:43		20:25			
Hilliard, OH	6.0	5:15						9:30								18:59		20:41			
Marysville, OH	27.0	5:36		7:09	7:48			9:51		12:08		14:29				19:20		21:01			
Kenton, OH	59.0	6:10						10:25								19:54		21:35			
Dunkirk, OH	70.0	6:16						10:31								19:59		21:41			
Ada, OH	86.0	6:22						10:37								20:06		21:47			
Lima, OH	100.0	6:36		8:04	8:43			10:51		13:03		15:24				20:19		22:01			
Fort Wayne, IN	165.0	7:22		8:51	9:30			11:37		13:50		16:11				21:06		22:48			
PITTSBURGH, PA	0.0	↓		↓	↓			6:02	↓	8:17	↓	↓	11:58	12:17	14:13	↓	16:07		18:32		20:29
Beaver Falls	30.0	↓		↓	↓			6:34	↓	8:49	↓	↓	↓	12:49	↓	↓	16:39		19:03		21:00
Youngstown	65.8	↓		↓	↓			7:13	↓	9:29	↓	↓	↓	13:29	↓	↓	17:19		19:43		21:40
Warren	77.6	↓		↓	↓			7:29	↓	9:44	↓	↓	↓	13:44	↓	↓	17:34		19:59		21:56
Hudson/Macedonia	117.8	↓		↓	↓			8:03	↓	10:18	↓	↓	↓	14:18	↓	↓	18:08		20:32		22:29
CLEVELAND, OH (Arr)	144.3	↓		↓	↓			8:33	↓	10:48	↓	13:19	↓	14:08	14:48	16:23	18:38		21:03		23:00
CLEVELAND, OH (Dep)	0.0	↓	5:17	↓	↓			6:53	8:38	↓	10:53	↓	13:24	↓	14:13	14:53	16:28	↓	18:43		21:08
Elyria, OH	24.5	↓		↓	↓			7:13	↓	11:13	↓	↓	↓	15:13	↓	↓	19:03		21:28		
Sandusky, OH	59.5	↓		↓	↓			7:39	↓	11:39	↓	↓	↓	15:39	↓	↓	19:29		21:54		
Toledo, OH	106.5	↓	6:35	↓	↓			8:20	9:56	↓	12:20	↓	↓	15:31	16:20	17:46	↓	20:10		22:35	
Defiance, OH	161.2	↓		↓	↓			9:05	↓	13:05	↓	↓	↓	17:05	↓	↓	20:55				
Ft. Wayne, IN	204.8	7:22	7:52	8:51	9:30	→ 9:43	11:13	11:37	13:43	→ 13:50	16:00	→ 16:11	16:48	17:43	19:03	21:06	21:33		23:52		
Warsaw, IN	243.8	7:52		9:21				12:07		14:20			16:41		18:13		21:36	22:03			
Plymouth, IN	268.9	8:12		9:41				12:27		14:40			17:01		18:34		21:56	22:24			
Gary, IN - Regional Airport	330.6	8:51		10:20				11:12		13:06			15:19		17:12		22:35	23:02			
CHICAGO, IL - UNION STATION	353.6	9:18	9:39	10:47				11:40	13:00	13:33			15:46		18:07	18:35	19:40	20:50	23:02	23:30	

Columbus, OH to Detroit, MI

All times are CST; Dec 8, 2006

Station	Miles	400	402	404	406	408	410	412	414	416	418
Read Down											
Pt Col Airport, OH	0		5:55	7:31	9:55	12:17	13:06		15:21	17:45	20:09
Columbus, OH	7		6:11	7:47	10:11	12:33	13:22		15:37	18:01	20:26
Hilliard, OH	13		6:22	7:58	10:22	12:44	13:33		15:48	18:12	20:37
Marysville, OH	34		6:38	8:14	10:38	13:00	13:49		16:04	18:28	20:52
Kenton, OH	66		7:01	8:37	11:01	13:23	14:12		16:27	18:51	21:16
Findlay, OH	93		7:24	9:00	11:24	13:46	14:35		16:50	19:14	21:39
Bowling Green, OH	116		7:45	9:21	11:45	14:07	14:56		17:11	19:35	22:00
<i>Conn. Trn from Cleveland</i>		200	202	204	206	208	210	212	214	216	218
Toledo, OH	142	6:38	8:23	9:59	12:23	14:45	15:34	16:23	17:49	20:13	22:38
Detroit Airport, MI	188	7:20	9:05	10:41	13:05	15:27	16:16	17:05	18:31	20:55	23:20
Dearborn, MI	202	7:35	9:21	10:56	13:21	15:42	16:31	17:21	18:46	21:11	23:35
Detroit, MI	210	7:52	9:37	11:13	13:37	15:59	16:48	17:37	19:03	21:27	23:52

Station	Miles	401	403	405	407	409	411	413	415	417	419
Read Down											
Detroit, MI	0	5:12	7:46	10:55	11:31	13:10	14:36	17:30	18:17	19:46	22:20
Dearborn, MI	8	5:29	8:03	11:12	11:48	13:27	14:53	17:47	18:34	20:03	22:37
Detroit Airport, MI	22	5:44	8:18	11:27	12:03	13:42	15:08	18:02	18:49	20:18	22:52
Toledo, OH	68	6:27	9:00	12:10	12:45	14:25	15:50	18:45	19:31	21:00	23:35
<i>Conn. Trn to Cleveland</i>		203	205	207	209	211	213	215	217	219	221
Bowling Green, OH	94	7:04	9:38	12:47		15:02	16:28	19:22	20:09	21:38	
Findlay, OH	117	7:25	9:59	13:08		15:23	16:49	19:43	20:30	21:59	
Kenton, OH	144	7:48	10:22	13:31		15:46	17:12	20:06	20:53	22:22	
Marysville, OH	176	8:12	10:45	13:55		16:10	17:35	20:30	21:16	22:45	
Hilliard, OH	197	8:27	11:01	14:10		16:25	17:51	20:45	21:32	23:01	
Columbus, OH	203	8:38	11:12	14:22		16:37	18:02	20:57	21:43	23:12	
Pt Col Airport, OH	210	8:55	11:28	14:38		16:53	18:18	21:13	21:59	23:28	

OHIO HUB INCREMENTAL CORRIDORS TRAIN SCHEDULES

Station Activity Summary

	Originating	Terminating	Through
Cleveland			
Toronto-Cincinnati	2	0	6
Cincinnati-Toronto	0	2	6
Chicago-Pittsburgh	1	3	7
Pittsburgh-Chicago	3	1	7
Total	6	6	26
Columbus			
Toronto-Cincinnati	1	1	7
Cincinnati-Toronto	1	1	7
Chicago-Pittsburgh	1	1	7
Pittsburgh-Chicago	1	1	7
Columbus-Detroit	8	0	0
Detroit-Columbus	0	8	0
Total	12	12	28
Toledo			
Chicago-Pittsburgh	0	0	10
Pittsburgh-Chicago	0	0	10
Columbus-Detroit	2	0	8
Detroit-Columbus	0	2	8
Total	2	2	36

NOTES:

Cleveland: Originates/Terminates two 3-C trains; the other six 3-C trains run through to Buffalo/Toronto

Columbus: Originates/Terminates one train each for Chicago, Cleveland, Cincinnati and Pittsburgh; there are seven run-through trains on the 3-C; and all the Detroit trains originate and terminate at Columbus.

Toledo: All ten MWRRS Chicago-Cleveland (Pittsburgh) trains run thru; All eight Columbus-Detroit trains also run through; there are an additional two Detroit/Toledo frequencies that Originate/Terminate in Toledo.

Ohio Hub Incremental Corridors - Train Scheduling Methodology

December 8, 2006

The Ohio Hub Incremental corridors adds new routes from Pittsburgh - Columbus, Columbus – Fort Wayne – Chicago, and Columbus – Toledo – Detroit onto the previous Ohio Hub system. As a result of this business plan update, the ridership forecasts and traffic patterns were changed.

For example, Pittsburgh to Columbus, and Detroit/Toledo to Columbus riders now have direct routes to Columbus, and so they would no longer need to change trains in Cleveland to make this connection. Although a timed connection in Cleveland would still be useful for riders who may be connecting from Buffalo, the Cleveland interchange ridership is not quite as critical as it was before. In contrast however, three new hubs have been added to the system where timed connections are critical:

- The first of these is at Columbus, where riders from Pittsburgh and Newark need either time connections or direct train service on to Cincinnati.
- The second is at Toledo, where riders from Cleveland need either timed connections or direct train service on to Detroit.
- The third is at Fort Wayne, since some of the mid-day trains from Fort Wayne into Chicago are more lightly used, a few trains only run from Cleveland or Columbus into Fort Wayne, where the riders from two trains are combine into a single train that will take them all into Chicago. This mid-day frequency reduction improves the financial performance of the MWRRS Chicago-Cleveland route.

The scheduling methodology develops a fixed regular route passenger rail service that pair routes to produce run-through services, and also features timed connections at Columbus, Toledo and Fort Wayne as described above. The result of the process is to define three main corridors that encompass all the routes that are included in the Incremental Corridors study. These are:

- **Toronto to Cincinnati** – created by pairing the 3-C with the Buffalo/Toronto line to create a run-through service.
- **Columbus to Detroit** – this corridor actually begins at Port Columbus airport rather than downtown Columbus and runs through to Detroit. North-south are coordinated with east-west schedules to produce timed transfers at Toledo.
- **Pittsburgh to Chicago** – A single schedule sheet shows all the Pittsburgh to Chicago schedules both via Cleveland as well as via Columbus. These trains all share the same MWRRS line from Chicago to Fort Wayne; east of Fort Wayne the routes split. The operations schedules are developed on the same sheet in order to show the overlap and west of Fort Wayne and to be able to coordinate some connections at Fort Wayne. A key requirement for the development of the Panhandle schedules is that they must be coordinated with the 3-C schedules at Columbus in order to provide for connections to Cincinnati.

The method of schedule development was as follows:

- 1) The 3-C corridor schedules from the earlier Ohio Hub report were used as the starting point. The only problem with the original 3-C schedules, is that a westbound train from Cleveland was needed that would arrive in Columbus near 9 AM. The 8:40 westbound departure from Cleveland was shifted to depart earlier at 7:20 AM instead giving a more convenient schedule for morning business travel. Otherwise the 3-C schedules were unchanged.
- 2) The next step was to extend five 3-C corridor trains to Toronto, adjusting the original Toronto schedules to create a run through operation at Cleveland. 15 minutes layover time in Cleveland was provided for schedule recovery. Pairing the 3-C with the Toronto route promotes more efficient equipment and crew utilization, by eliminating the need for unnecessary layovers at Cleveland.
- 3) Next, the Pittsburgh to Columbus schedule over the Panhandle was developed by using the 3-C Cincinnati arrival and departure times as the starting point. This enabled the development of a coordinated schedule since seven out of the eight daily frequencies on the Panhandle have coordinated transfers to 3-C trains in Columbus. The Panhandle train schedules indicate the number of the connecting 3-C train for Cincinnati. Four of the Panhandle trains originate in Newark, OH and the other four originate in Pittsburgh.
- 4) After the Panhandle schedules were locked down (these times were determined by the requirement to coordinate with 3-C schedules in Columbus) the Panhandle frequencies were extended to Fort Wayne. Six out of the eight Panhandle schedules run through to Fort Wayne; five of those run directly through to Chicago and the remaining one is coordinated with a connecting MWRRS train at Fort Wayne. One additional Columbus to Chicago train is also operated.
- 5) For developing the Chicago to Cleveland schedules, the previous approved MWRRS schedules were used as the starting point. These schedules provided eight daily frequencies from Chicago to Toledo, and nine frequencies from Toledo to Cleveland. However, the desired frequencies were 14 from Chicago to Fort Wayne, and 10 from Fort Wayne to Cleveland.
 - The 14 Chicago to Fort Wayne frequencies were attained as follows: Seven out of the original eight MWRRS Chicago to Cleveland trains were retained – the one that was dropped was coordinated with a Chicago-Columbus train; six more trains were added as Chicago to Columbus frequencies; and an early morning/late evening Fort Wayne to Chicago local round trip was added to round out the schedule.
 - From Toledo to Cleveland, the MWRRS plan already had a planned ninth train; that schedule was extended to Fort Wayne, and one additional Fort Wayne to Cleveland train also was added. Both of these new schedules were coordinated with Chicago-Columbus trains at Fort Wayne to facilitate an across-the-platform transfer at Fort Wayne. Most of the original MWRRS schedules were left intact, but a few times were

shifted slightly to coordinate schedules for the Cleveland trains that did not run through to Chicago, but which rather connected to Chicago-Columbus trains at Fort Wayne.

- 6) Once the Chicago-Cleveland schedules had been finalized, seven trains were extended to Pittsburgh via Youngstown to create a run through operation at Cleveland. Ten minutes were provided eastbound and five minutes westbound for schedule recovery. Pairing the Chicago-Cleveland with the Pittsburgh route promotes more efficient equipment and crew utilization, by eliminating the need for unnecessary layovers at Cleveland.
- 7) Finally, the last step was to develop the Columbus to Detroit schedules. These were synchronized with eastbound and westbound Cleveland-Chicago schedules to provide a timed transfer north-south connection at Toledo each east-west train. The Columbus to Detroit schedules show the number of the connecting trains to at from Cleveland, so that a Cleveland to Detroit corridor service can be preserved.

In summary, the original 3-C and MWRRS schedules were preserved as the primary basis for developing the new schedules. All the other schedule time were derived based on the requirement to maintain efficient Pittsburgh-to-Cincinnati connectivity at Columbus, and efficient Cleveland-to-Detroit connectivity at Toledo.

The following summarizes the train frequencies provided in the key east-west corridors.

Fort Wayne to Chicago service - 14 frequencies:

- 1 local round trip Fort Wayne to Chicago
- 7 trains from Cleveland
- 6 trains from Columbus

Columbus to Chicago service - 8 trains from Columbus to Fort Wayne:

- 6 trains direct from Columbus to Chicago
- 1 connection to Chicago via MWRRS train at Fort Wayne
- 1 local round trip Columbus to Fort Wayne

Cleveland to Chicago service - 10 trains from Cleveland to Fort Wayne, all ten having connections to Detroit:

- 7 trains direct from Columbus to Chicago
- 2 connections to Chicago via MWRRS train at Fort Wayne
- 1 local round trip Columbus to Fort Wayne

Pittsburgh to Chicago service - 7 trains:

- via Cleveland: 4 eastbound direct, 1 eastbound transfer; 5 westbound direct
- via Columbus: 2 trains direct in each directions
- Pittsburgh to Chicago via Cleveland is slightly faster than the Panhandle

Service Design Issue: Direct Service vs Transfer

The development of these schedules developed four main routes:

- Toronto to Cincinnati
- Pittsburgh to Chicago via Cleveland
- Pittsburgh to Chicago via Columbus
- Columbus to Detroit

These routes were developed by logical operational pairings to minimize equipment dwell time and promote efficient equipment utilization. It also results in the development of a reasonably simple and consistent service pattern that will be easy enough for customers to understand and use.

For customer convenience, an efficient system of synchronized schedules was developed to permit coordinated transfers between routes at Columbus and Toledo. The train number pairings associated with these transfers are indicated on the timetables.

A possible concern with the presentation of these timetables is that a single-seat Cleveland to Detroit through service is not provided. However, given the way these schedules are developed it is possible to develop through services by re-pairing certain train segments on an operational basis. To understand how the schedules could be repaired to develop more through services, consider trains 402 and 202 as an example.

Train 402:

Port Columbus Airport	5:55 AM
Toledo	8:23 AM
Detroit	9:37 AM

Train 202:

Cleveland	6:53 AM
Toledo	8:20 AM
Chicago	11:40 AM

These trains could be operationally re-paired as follows:

Train 402:

Port Columbus Airport	5:55 AM
Toledo	8:23 AM
Chicago	11:17 AM

Train 202:

Cleveland	6:53 AM
Toledo	8:20 AM
Detroit	9:37 AM

Basically by swapping the connections at Toledo, a direct Cleveland to Detroit frequency could be created. An additional Chicago to Columbus via Toledo frequency would also be created as a by-product. However, the cost of doing this is that both a Cleveland to Chicago, and Columbus to Detroit frequency would be converted from direct service to a transfer.

The same type of a schedule swap could take place at Columbus between, for example, trains 308 and 106.

Train 306:		Train 104:	
Pittsburgh	5:44 AM	Cleveland	7:20 AM
Columbus	9:10 AM	Toledo	9:10 AM
Chicago	1:33 PM	Cincinnati	11:09 AM

These trains could be operationally re-paired as follows:

Train 308:		Train 106:	
Pittsburgh	5:44 AM	Cleveland	7:20 AM
Columbus	9:10 AM	Toledo	9:10 AM
Cincinnati	11:09 AM	Chicago	1:33 PM

By swapping the connections at Columbus, a direct Pittsburgh to Cincinnati frequency could be created. An additional Cleveland to Chicago via Columbus frequency would also be created as a by-product. However, the cost of doing this is that both a Pittsburgh to Chicago, and Columbus to Cincinnati frequency would be converted from direct service to a transfer.

For a feasibility-level analysis we are not taking any position of the desirability of undertaking these kinds of schedule swaps or not. However, it should be pointed out that by providing direct service the schedules would become much more complex. In terms of passengers' ability to understand and utilize the schedules, their ability to "navigate" the system with getting lost or inadvertently on the wrong train, as well as for operational integrity, simplicity and consistency are better.

The purpose of this discussion is not to argue the merits of various schedule pairing strategies, but simply to show that alternative pairing to provide more direct service are possible, given the way that the train schedules have been constructed.